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1913 REVIEW OF THE TRADES REPRESENTED BY THE REPORTER

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OUR ANNUAL REVIEW EDITION.

As a supplement of the regular issue of the Reporter this week is presented the special review publication, comprising such a resume of the important developments in our particular trades during 1913 as is calculated to reflect to best advantage as a work of reference and authority. A number of the more significant features of the review have involved such detailed preparation as to preclude the publication of the work nearer the close of the period in review, and we hope that our readers will share in our judgment that the purposes of the issue are most creditably fulfilled by the policy of awaiting the fullest consummation of the treatment of our review subjects. As has been our custom in these special issues, we have aimed to give as much of the data as possible in summarized statistical form, so that questions of more material import might be capable of readiest and most convincing solution.

The passing of 1913 has been attended with widespread tokens of relief throughout the country's commercial ranks. The year has undoubtedly been one of the most momentous in a long period in upsetting the customary balance of economic conditions and injecting elements of disconcerting and speculative bearing in practically every line of business activity. The influences which have naturally reflected to most forcible effect upon our commercial stability are those related to the inauguration of a new Federal administration, which had been pledged to such reforms as were found to strike at the vitals of the country's business structure. Tariff revision has been the overwhelming factor of unrest over nine months of the year, and since the adoption of the new act serious complications over the construction of several important specifications have arisen to impose unreasonable burdens upon importers as well as involve both import and distributing operations in a maze of entanglement. It has been gratifying that the officials at Washington have recently shown a more liberal spirit in interpreting some of the more threatening issues in accordance with the spirit of fairness and ethics to fulfill the expressed purposes of the framers of the act, and in this manifestation of reasonable consideration of business principles the Reporter's trades have been encouraged over the solution of other problems that may arise over tariff matters.

Contributing to the disturbing effects of tariff legislation during 1913 has been the reformation of the national banking system, which has been reflected upon financial conditions generally, and operating to all the greater bearing on account of the monetary depression in Europe. The Mexican imbroglio also tended as a restraining factor upon the usual freedom of commercial intercourse on the fear of possible international complications. Of more specific relation to our industries in the year's Washington events have been the developments governing the Pure Food and Drugs Act, the progress of anti-narcotic legislation, and the decisions of the Supreme Court determining the right of a dealer to resell at his own terms patented and copyright articles regardless of the price restrictions sought to be imposed by original vendors. In the extended review of progress in the Federal fields for 1913 many other subjects of importance to our trades are treated.

The various market developments for the year are covered with concise but comprehensive detail and are supplemented with special correspondence and treatment from those who have been in closest touch with primary sources in the foreign and domestic fields. As a feature of particular value and embodying probably the worthiest purposes of a review edition is the record of imports and exports for the last five fiscal years, ending June, covering a wide range of items in the Reporter's fields.

In the following paragraphs are summarized some of the more important developments affecting the various local markets during the year.

A good demand prevailed for paint materials over the first nine months of the year. General dullness in all lines was reflected in the paint market after the tariff law went into effect. Many paint materials were affected by changes in duties and trading was slowed up to await practical workings of new law. With the exception of price changes, brought about by tariff influences, prices for materials were fairly steady all year. Strikes in many cities in spring months caused fears that business would be affected, but these labor troubles were settled satisfactorily.

Linseed oil prices were low through the year and consumption reached a large total. On account of low prices substitutes and adulterants were not used to any extent. Reports of a small flax crop gave strength to prices in the latter half of the year, but advances were not large and closing prices showed but small net gain over the January values. In the first part of the year oil exports were large, but these soon fell away and at the close of the year imports were regarded as more probable than exports since the import duty was cut to 10c. a gallon.

Cotton oil seems to have lost considerable prestige abroad, owing to high prevailing prices, and the foreign movement made an unsatisfactory showing. High prices for seed and crude oil have kept prices relatively high all year and domestic consumers have been called upon to take more of the output than usual.

In spite of very high prices on many of the leading soap oils, such as cocoanut, palm kernel, etc., business was fairly active. Prices on cocoanut oil touched high record levels, chiefly on account of the heavy increase in the consuming demand, both here and abroad.

There was a heavy shortage in the catch of menhaden which brought out high prices for this commodity. Practically all descriptions of animal oils were firm and high throughout the year owing to the strong position of raw materials.

Petroleum developments were featured by a sharp advance in the high grade crude products in January and February, with the Pennsylvania oils in most sensational movement. A further strengthening marked the Lima, Indiana, Illinois, mid-continent, Texas and Louisiana grades. Under the bullish crude developments, the various refined products were in upward tendency early in the year, with the sharpest gains in the naphtha products. The naphthas were subjected to the only set back during the year, chiefly in the export schedule on account of the slackening tendency of the demand.

The naval stores market suffered a severe decline due to the failure of the leading distributing company, and failure of smaller concerns affiliated with the parent company.

Most important developments of the year causing price changes in the drug market were the signing of a cinchona bark price-maintenance agreement and a subsequent observance of its terms by the Java bark growers and European salts makers, delays in shipments from Mexico of sarsaparilla root, and "American saffron flowers and a shortage in many of the 1913 crops of botanical medicinal products in Continental Europe, Asia and Africa, due to severe and long-continued droughts, which were also experienced in the United States, to the detriment of the relatively few botanical drugs grown in this country. Opium showed considerable strength early in the year but soon sold off heavily under pressure exerted by the Turkish banks. A rally occurred, however, in March on reports of heavy damage to the fall-planted poppy crop The uplift continued until the middle of the year, carrying prices back almost to the levels reached at the beginning of the twelve-month. This advance was accelerated by the general belief that the import duty for this narcotic would be doubled. From the mid-year period until the end of the year, however, there was a sharp decline, as in the prospects for a large yield, about 8,500 cases. Menthol advanced briskly early in the year on a scarcity of spot stocks and unfavorable reports on the new crop. Later in the year, however, prices were marked down extensively on the indication that the yield would be abnormally large, and the import duty would be lowered from an ad valorem rate of 25 per cent. to a specific rate of 50 cents per pound.

Lemon and orange oils were advanced sharply early in the year on light yields. Quotations for lemon oil reached levels fully $1 above those which prevailed at the close of 1908, immediately after the Messina earthquake. Citric acid also rose sharply early in the year on the greatly increased cost of lemons and limes in the primary markets and a serious curtailment of the citrous crops in California and Florida but, with a seasonable falling off in the demand prices were restored to more nearly normal levels at the close of the year.

The history of fertilizer materials was interesting during the year. Prices fluctuated considerably with appreciable decreases in nitrate of soda and sulphate of ammonia. One of the most interesting features in the case of nitrate of soda from a domestic standpoint was the announcement of a new selling factor in the market. This had a tendency to stimulate competition and depress prices. Lower ocean freights, increased production, and lower prices for nitrate on the West Coast were other contributing factors in weakening market prices. Sulphate of ammonia reached the largest output in the history of the trade. Production increased everywhere and the output apparently was too large for consumption. Fish scrap had a poor year, owing to high prices caused by the limited production. Potash salts were advanced in price, but the market was largely routine, as consumers are covered ahead on contracts placed at the time the famous controversy was settled.

Changes in the tariff schedule have been reflected in prices for many chemicals, while increased domestic production at home has resulted in a lowering of quotations and an occasional trade war.

Labor troubles were prevalent in large textile centers in the first part of the year, and this was not favorable for consumption of dyestuffs. Consumption of manufactured dyes, however, was about normal, with the natural dyes recovering none of their lost ground. Price changes were brought about by tariff revisions, especially in the case of prussiates and zinc dust. Bichromate of soda was of more than usual through the year, because of the apparent preponderance of production over consumption and the consequent sharpening of competition. Starch and dextrines were subject to frequent fluctuations with the net change in buyers favor. Gambier was low in price at all times, with prices weakened because of slow demand in foreign markets.

Many valuable expressions of trade conditions during 1913 are given in the correspondence from representative houses in our various trades, published in the latter part of the review, and it is encouraging to note that our friends in the trade view the 1914 prospects with keen manifestations of optimism.

PROGRESS IN FEDERAL FIELDS.

Notwithstanding the fact that Congress was engaged, during the greater part of the year, with attention to two subjects only- the tariff and currency—there were many matters apart from the tariff which were calculated to interest the members of the various trades in all parts of the country. These instances accrued out of former legislation by Congress, decisions of the courts, and activities of the executive and administrative departments of the government, which have a bearing upon the interstate and international trade of the country.

No review of the proceedings in the national field of activities would be complete without a glance, at least, at the results achieved through the placing upon the statute books of an entire new tariff law, with radical reductions in duties, or transfers from the dutiable list to the free list, and amendments, modifications, and new features in the administrative customs laws. So diversified are the interests affected by the different schedules and paragraphs in each schedule that it is practically impossible to review the results achieved, except in general terms which call attention to the general policies adopted in the law.

Closely associated with the tariff law and its operations upon the trade industries of the country was the passage, as a part of the tariff law, of the new incomee-tax provision, and the passage of the law relating to banking and currency, which cannot but effect, directly or indirectly, every avenue of commercial and industrial endeavor throughout the United States. The income-tax law is general in its application, taxes income $3,000, and has a feature unique in income-tax legislation, being a system whereby incomes are taxed at their source, with the payment thereof by withholding, at the source, the amounts due on the income. The currency legislation is intended to remodel the banking system and bring about greater elasticity of note issues by restricting such issues to Federal reserve banks, but allowing latitude for the issues of notes upon the security of gold reserves and prime commercial paper.

Among the matters which occupied much of the attention of those who have to do with Federal legislation and the enforcement of the Federal laws, were the opium and general anti-narcotic bills, and the changes brought about in the administration of the general food and drugs act. Although a part of the time was spent, during almost every month of the year, by those who are interested in legislation pertaining to habit-forming drugs, in discussions on this subject, the entire year elapsed without any of the measures that have been pending in Congress relating to these subjects, being finally acted upon.

Another subject which engaged general attention was the discussion in many quarters, and decisions of the Supreme Court of the United States on the subject of control of re-sale prices. The ultimate results to follow from this discussion, and later decisions of the courts, are certain to have an important bearing upon trade in general, and particularly the trade of partically all industries in interstate commerce of the country. Some interesting results were obtained during the year in the operations of the executive departments in enforcing the provisions of the food and drugs act, and the application of the so-called Sherley amendment to that law in regard to the prohibition of statements upon labels respecting the curative or thereapeutic properties of medicinal compounds. The net weight law also became effective under the regulations prescribed by the officinals of the department, and many instances were recorded of cases brought for violations of the food and drugs act and the insecticide law.

There is still pending before the Supreme Court of the United States a very important case having relation practically to the entire petroleum industry of the United States, which case turned on the question arising from legislation in Congress intended to make pipe lines, which carry oil in interstate commerce, common carriers, regardless of the question whether the pipe lines carry oil for the public, generally, or are only operated by private enterprises for conveying oil to and from private refineries.

Casual reference to most of the affairs affecting the various trades, as they are set forth in Congressional legislation, court decisions, and the discharge of duty by those who are empowered to enforce the Federal It is recognized in all matters pertaining to legislation of this kind, that while there is strong public sentiment in this country favorable to the control of habit-forming drugs, there is no such easy way of securing legislation here as exists in most of the countries of Europe. The difficulties presented in this country arise from the dual form of government, wherein the United States is supreme in interstate legislation, but runs counter to the laws of the States in efforts to make laws

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statutes, are touched upon in this review.

The New Tariff Law.

The most notable achievement in Federal affairs, during the year, as having a bearing upon all of the trades, as well as practically all of the industries of the country, was the passage by Congress and signing by President Wilson, of the new tariff law. This was a highly important event in Federal legislation, because it was the culmination of a long period of agitation of tariff matters, and the final result of efforts made by the party dominant in political affairs during the past two years, to make effective the changes in the tariff which were under discussion throughout 1912. The tariff legislation so ocmpletely occupied the boards in the Federal legislation body throughout the year, when by superhuman efforts on the part of President Wilson's administrative supporters in Congress, the complement to the tariff measure, currency legislation, was carried through.

It is practically impossible in a brief review to give more than a cursory glance at what was accomplished in the new tariff law. Practically every paragraph in the chemical schedule, and various features of other schedules of the law, affecting directly or indirectly, specific branches of the trades, was covered. It is only by direct reference to particular paragraphs that one may see what action was taken that has a bearing upon a particular branch of industry. About all that can be done in bringing to mind just what was accomplished with respect to the new tariff, is to give general references which will take into account the most notable features of the new legislation.

The most striking feature of the new tariff law, perhaps, was the distinctive changes made in the completed and signed tariff bill, especially with respect to the chemical and kindred subjects in the new tariff law, compared with what was proposed in the tariff proposition advanced by the dominant party during the sessions of Congress in 1912. These distinctive changes may, perhaps, be referred to, mainly, as a departure from the proposed reduction in the chemical schedule, which was contained in a bill passed by Congress in 1912, and which was vetoed by President Taft. In the chemical schedule of the new tariff law there was a genuine effort to bring about a scientific modification of rates, of course, in accordance with the ideas prevalent among the members of the party which revised the tariff at this time chiefly to reduce duties all along the line. This reduction, however, is still generally regarded by those who fear the effects of the reduction, as having been lower than is believed to be wise. Sufficient time has not yet elapsed to demonstrate just what the effect of this reduction will be. It probably will take the greater part of 1914 to determine this question, with notice being taken all along the line of the number of increased importations, and thereby increased competition, as to just what the effect of these changes will be.

With respect to the chemical schedule proper, the new tariff departed from the first efforts of the party in control in abandoning the idea of imposing duty upon ingredients of foreign production wholly, which enter into the manufacture of paints, varnishes, etc. The House of Representatives was rather strenuously in favor of exacting duty upon such commodities, but the Senate rejected most of the propositions along that line.

Another notable feature of the tariff legislation was the tendency in the United States Senate to reduce the duties below what was originally proposed in the House of Representatives. This was a distinctive departure from the policy pursued in tariff legislation during the past 20 years. Almost invariably in the past, when the direct representatives of the people, in the lower House, have advocated changes in tariff schedules, and have had in mind the interests of the government in the matter of public revenues, as well as the needs of the industries, the result has been that in passing upon the work of the House, the Senate has, almost universally, increased the rates of duty proposed by the House. This was not the case in the preparation of the present tariff law. The changes made by the Senate were almost exclusively, so far as the rates of duty in section one of the bill covering dutiable articles, and also in the free list, to reduce the duties or transfer the articles to the free list.

It was a long drawn out battle to bring about this revision of the tariff. The House of Representatives entered upon the work immediately with the opening of the special session under the new administration of President Wilson. After many weeks of detailed consideration of different schedules, the House passed what has come to be known as the Underwood-Simmons bill, with changes in practically every schedule, and a complete tariff according to the ideas entertained by the majority in the House. The bill then went to the Senate, where many more weeks were spent in hearings and consideration of the different schedules, and the changes made by the Senate were later adjusted in conference committees between the two houses. The bill as completed was signed by President Wilson, at 9 o'clock on Friday night, of October 3, 1913.

As a general proposition the new tariff law is a radical reduction from the rates carried in tariff measures during the past 60 years in the history of the government. Indeed the general ad valorem rates of duty carried in the bill are lower than those contained in the tariff act of 1846, which was a measure following along the ideas entertained by th members of the dominant party in that early period of the history of the government. In adopting this low-tariff policy, the dominant party recognized that there undoubtedly would be sweeping reductions in the revenues of the government, and the adoption of an income tax was agreed upon as a feature of the bill to augment the treasury receipts and prevent a decided deficit in the public revenue. Lower duties, and, therefore, a replenishing of the Treasury receipts by a general tax upon incomes ranging from $3,000 and upwards, constitute the salient features of the new tariff law.

With respect to the chemical schedule proper, the general tendency of the new law is not only to reduce the duties and transfer to the free list many articles that are utilized as materials for the manufacture of finished products, but the rates carried on almost every item in the schedule are from 25 to 50 per cent, lower than in the tariff act of 1909, which was superseded by the existing law.

These reductions in rates are accompanied by many changes in classifications and in modifications of the treatment accorded to different articles both in the free list and in the dutiable list. Other important changes in the tariff included some modifications of the customs administrative laws. During the consideration of this part of the bill in both houses of Congress, various plans were suggested for further investigations into tariff matters, and to bring about retaliations for discriminations against the trade of the United States. Practically all of these features of the bill, however, were lost in conference.

If one is to judge from the results in the matter of importations under the first two months' operation of the new tariff, there is not going to be such an influx of foreign commodities as was predicted the case would be during the consideration of the bill. As a matter of fact, with respect to chemicals, drugs, etc., the November importations, being the first full month under the operations of the new tariff law, show really a reduced volume of importations by values than was shown in the corresponding month of a year ago. It is recognized, however, that this is not a fair illustration, as various other causes enter into the matter of international trade and affect that trade quite as much as the increasing or decreasing of tariff rates. It has to be said that most of the people of the country who favor a protective tariff system have been impressed with the idea that the new tariff cut duties too low, and that serious injury may be visited upon many of the industries of the country as a result of increased foreign competition. It probably will require the whole of 1914 for any well defined results to be developed indicative of what may be expected from the workings of the new law.

The Control of Resale Prices.

Probably no action of the administrative officials of the government, or of Congress, has attracted more attention during the year than the matters pertaining to price control of patented products and copyrighted articles, or other commodities placed on the market under conditions wherein the original owners or manufacturers of such commodities seek to control the final sales price to consumers.

One of the most notable decisions by the courts on this subject was that delivered by the Supreme Court of the United States in May last, in what is known as the sanatogen case, originally brought in the District of Columbia. In this case the court decided that the owner of a patent cannot restrict the re-sale price. Other decisions along the same line included a resale price under copyright of articles. Other issues relating to this resale question are still pending in the courts, and it will probably be a year or two before a final adjustment of the matter shall be had.

The importance of this question has been recognized by the representatives of all the trades in conventions held during the year. Intimations have been given that the foremost manufacturers of patented and copyrighted articles, while not desirous of running counter to the provisions of the anti-trust laws on the Federal statute books, are satisfied that something should be done to protect prices in the policy pursued by those who obtain possession of commodities after they have left the hands of the original manufacturer. How this is to be accomplished has not as yet been determined. Many manufacturers of articles not protected by patents, also suffer from inability to protect buyers of their goods in the final disposition of commodities at agreed prices.

The opinion of the Supreme Court of the United States in the sanatogen case was delivered by Mr. Justice Day. This opinion was delivered as a final judgment of the court in an action which has been brought in the lower courts of the District of Columbia by the Bauer Chemical Company against James O'Donnell, a druggist in the District of Columbia. The propositions advanced in the case were set forth in a question propounded to the Supreme Court of the United States by the Court of Appeals of the District of Columbia, substantially, as follows:—"Did the acts of the appellee (the druggist) in retailing at less than the price fixed by said notice accompanying the original packages of sanatogen, purchased by jobbers, as aforesaid, constitute an tent?"

It is a notable feature that in this opinion by the court dissents were filed by Justices McKenna, Holmes, Lurton and Van Devanter, indicating that there is a wide diversity of opinion among the members of the high court as to the propositions laid down regarding the rights of owners of patents to control the final selling price of such articles to consumers, where contracts have been entered into between the buyers of the products and the original seller as to the stipulated price at which the product shall be resold.

It has been asserted by attorneys who have examined the opinion, that its final effect will be to force the owners of patented articles to trade directly through agents rather than in sales to the public generally, if the prices sought to be fixed are to be maintained. In other words, that the meaning of the decision in this case is that when the seller of the patented article obtains the patented product through purchase in the open market, he becomes the absolute owner of the article, and may sell it at whatever price he sees fit to accept for the article, no matter what labels may be contained on the package regarding the alleged stipulated price.

The Court of Appeals of the District of Columbia, the highest court in the District, sought to secure a final decision on this question by certifying the chief proposition in the case to the highest court. The opinion of the Supreme Court of the United States was very elaborate, covering every feature of the question, and gave a full history of the transactions involved in the manufacture and sale of sanatogen under the alleged agreement or notice to the retailer as to the selling price of the commodity. One paragraph in the opinion by Mr. Justice Day summarizes several cases which have been decided in the high court, and will bring to the minds of members of the trades the propositions set forth. In this part of the opinion Mr. Justice Day said, in referring to the notice given by the chemical company in regard to the selling price of the product:—

The object of the notice is said to be to effectually maintain prices and to prevent ruinous competition by the cutting of prices in sales of the patented article. That such purpose could not be accomplished by agreements concerning articles not protected by the patent monopoly was settled by this court in the case of Dr. Miles Medical Company vs. Park & Sons Co., 220 U. S. 373, in which it was held that an attempt to thus fix the price of an article of general use would be against public policy and void. It was doubtless within the power of Congress to confer such right of restriction upon a patentee. Has it done so? The question has not yet been determined in any previous case in this court so far as we are aware. It was dealt with under the copyright statute, however, in the case of Bobbs-Merrill Company vs. Strauss, 210 U. S. 339. In that case it was undertaken to limit the price of copyrighted books for sale at retail by a notice on each book fixing the price at $1 and stating that no dealer was licensed to sell it for less, and that a sale at a less price would be treated as an infringement of the copyright. It was there held that the statute, in securing to the holder of the copyright the sole right to vend copies of the book, conferred a privilege which, when the book was sold, was exercised by the holder, and that the right secured by the statute was thereby exhausted. The court held that it was not the purpose of the law to grant the further right to qualify the title of future purchasers by means of the printed notice affixed to the book, and that to give such right would extend the statute beyond its fair meaning and secure privileges not intended to be covered by the act of Congress. In that case it was recognized that there are differences between the copyright statute and the patent statute, and the purpose to decide the question now before us was expressly disclaimed.

Following this expression the court decided the question before them, in the sanatogen case by holding that the patentee cannot restrict the resale price.

The same principle was recognized by the Supreme Court in the case of Straus against the American Publishers' Association and the American Booksellers' Association, in determining that the copyright laws could not be used as a basis to maintain a monopoly in relation of the Sherman anti-trust law, and that the copyright of a book did not permit the owner to control the price at which it was to be sold after full title had passed from the original vendor.

It is a matter of interesting speculation among the representatives of the trades whether any plan can be devised whereby the ultimate sales price to consumers can be controlled by the manufacturer. Other cases are pending in the Supreme Court of the United States, which come under the terms of the patent or copyright laws, and involve the claim of right by some manufacturers to fix the resale price where only the package or container of the product is copyrighted or patented. Practically every phase of this important question is now before the court, and the final decision will be of tremendous interest to manufacturers and dealers throughout the United States.

Federal Pure Food Law Operations.

In addition to the active work which has been done by the inspectors in the field, and by the Board of Food and Drugs Inspection, under the direction of the new head of the board, the Chief of the Bureau of Chemistry in the Deparment of Agriculture, Dr. Carl L. Alsberg, a number of changes have been made by the department in the formation of the board and in the policy which it pursues.

In the beginning of the year the Board of Pure Food and Drugs Inspection was remodeled upon new lines, following the retirement of Dr. Wiley from public service. Dr. Alsberg, who had become Chief of the Bureau of Chemistry, was made chairman of the Board of Pure Food and Drugs Inspection, and Dr. Doolittle, who had served on the board, retired, and went to the government laboratory in New York. The board was then reorganized with the retention of Dr. A. S. Mitchell and including Dr. H. M. Loomis, who was called from the government laboratory at San Francisco, Cal., where he was chief. During the year these officials of the Board of Pure Food and Drugs Inspection have conducted the operations of the food and drugs act, and have made many investigations into conditions in the trades and industries shipping foods and drugs in interstate commerce, and brought cases to the attention of the solcitor of the department, and through that office the Department of Justice has made investigations where violations of the law were alleged to exist.

One of the notable features brought out in connection with the reorganization of the Department of Agriculture, on the incoming of Secretary Houston was the attitude of the chief of the department now apparently takes with respect to amendments in the Pure Food and Drugs law, and the general policy which the department pursues with respect to the law and its operations. In the course of his first report, covering the operations of the department, Secretary Houston announced his desire that government standards shall be established for foods and drugs, and this idea has been emphasized by Dr. Alsberg in a number of discussions of matters pertaining to the enforcement of the food and drugs law, whenever he has had occasion to discuss this question in public. It has become apparent, from the comments that these officials have made regarding the law and its operations, that they are not so insistent upon new legislation as they are that existing laws shall be enforced, and that everything shall be done to simplify the operations of the law and make it so clear that manufacturers and dealers shall have no difficulty in knowing what the law is, and, at the same time, that the consuming public shall receive the beneficial results intended to accrue from the strict enforcement of the law pertaining to foods and drugs in interstate commerce.

Along the line of this attitude of the department it is observed that there has not been much approval from the department for radical changes such as were proposed a year ago under the so-called Richardson bill, which was pending before the Committee on Interstate Commerce of the House, and where it since has been retained making little progress. Under the old order of affairs in the department, vigorous efforts were put forth by many of the officials to bring about legislation along the lines of the Richardson measure. These efforts have not been continued under the new administration. It is notable also that there has been a cessation of efforts to bring about such regulations as were contemplated under the former administration with respect to controlling the traffic in habit-forming drugs. The chief reason proposed in the stoppage of efforts of the department along this line has been the fact that the general anti-narcotic bill has been pending throughout the year in Congress with every indication that ultimately the measure would pass and receive the approval of the President. No formal efforts have been made by the Agricultural Department or the Board of Food and Drug Inspection to urge upon Congress the passage of the anti-narcotic bill, the reason being that this legislation was almost directly under the general charge of the State and Treasury departments, and also received the indorsement of President Wilson, in a plan to carry out the part which the United States assumed in the findings of the opium conference at The Hague. That conference, which was largely secured through the efforts of this government, practically pledged the United States to bring about uniform laws for the control of the opium traffic in interstate commerce, and also the trade in other habit-forming drugs, notably opium, cocaine, etc.

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which will control interstate traffic, and which must be accomplished without interfering with the rights of the States.

According to the opinions expressed by the officials of the Department of Agriculture, the general anti-narcotic measure, if it shall become a law, will render unnecessary other efforts which have been put forth, largely through officials of the Agricultural Department, operating with those of the Treasury Department, to prevent the abuses which exist with reference to these habit-forming drugs. One form of attacking these abuses was the proposed regulations of the department, which have been shelved pending the action upon the anti-narcotic bill. Another proposition was the announcement of a decision by the Treasury Department, through its Customs Bureau, on the recommendation of the Secretary of Agriculture, that certificates and affidavits should accompany the releasing of imports of cocaine into the United States. The object sought to be accomplished by these certificates and affidavits was to trace cocaine from its arrival in this country, through the hands of the manufacturers and dealers, down to the ultimate consumer. It has been recognized by the officials of the department that the plan proposed, notwithstanding all its merits, is perhaps objectionable in many ways and not certain of enforcement. Information has reached the department that several manufacturers who import coca leaves have made the requisite affidavits and presumably have acquired affidavits in turn from those to whom manufactured cocaine has been sold. So much uncertainty attaches to the operations of this Treasury decision relating to the control of the trade in cocaine, that the officials of the Treasury and Agricultural departments have expressed the earnest hope that the general anti-narcotic bill shall speedily become a law in order to render unnecessary the efforts to enforce such a system as was embraced in the Treasury decision.

Another feature of the subject pertaining to the enforcement of the Pure Food and Drugs law is the constant recurrence of measures in Congress proposing a variety of amendments to the law. Perhaps a score of bills on this subject are now pending in the two houses. The nature of these amendments is mainly directed toward requiring that the ingredients of foods and drugs shall be stated on the labels of packages; that the names of the manufacturers shall appear, rather than the names of the dealers or dispensers; that a variety of changes be made in the provisions of the act relating to adulteration and misbranding, all of which changes are represented by those who presented these bills to be calculated to safeguard the public health. It is by no means conclusive, because the bills referred to have made little progress during the past year, that they do not meet with favor among the members of the Federal legislative body. The chief reason why all legislation of this character has not made progress during the past year has been the fact that the attention of Congress has been given almost exclusively to the specific subjects embraced in the tariff, currency and appropriation bills.

Governmental Policies Announced.

As indicating the position taken by the Department of Agriculture as the chief administrative department having to do with the enforcement of the food and drugs act, a number of expressions have been made by Dr. Alsberg, in his capacity as Chief of the Bureau of Chemistry and head of the Board of Food and Drug Inspection, in which he has, among other things, called attention to the desirability of having closer connection between the Federal food and drugs officials and those of the States. In speeches delivered before various commercial organizations, Dr. Alsberg has indicated his position on a number of questions of this kind. In one of the addresses, which should be referred to as indicative of the general attitude of the department, Dr. Alsberg discussed the misbranding phases and their remedy.

As indicating the purpose of the officials charged with the duty of enforcing the food and drugs act, to cooperate with the manufacturers of products that come under the jurisdiction of that act, Dr. Alsberg, among other things, said:—

The Department of Agriculture feels that there is no longer any excuse for misbranding. It feels that the time is passed when ignorance of the law can fairly be urged as an excuse. Substantial misbranding is regarded as ground for prosecution. With the regulations, the food inspection decisions, and with the notices of judgment before him the manufacturer should find the preparation of labels a simple matter. There is one guiding principle which, faithfully followed, will enable him to avoid all difficulties. Place no statement on the label which is not truly descriptive and intelligent to the average purchaser. If you will ask yourself without bias:—What does this label mean to the consumer? you ought rarely to have any difficulties. If you will do that you will always find yourself in harmony with the Board of Food and Drug Inspection, for that is the question which the board always asks itself. The interest of the consumer is the first care of the board. If the manufacturer comes to see these questions from the consumer's standpoint he will never have any difficulties with the Department of Agriculture.

The department further recognizes that there are a few cases in which it is not easy to decide what is proper labeling. In such cases the manufacturer should get advice from experts before publishing his labels. In order to assist in correct labeling the Department of Agriculture is ready to offer its services in this advisory capacity, and invites correspondence in such cases. In order to consider these questions at all it is necessary to know the composition and sometimes the method of preparation of the product which is to bear the label in question.

However, the department through the Board of Food and Drug Inspection, will act in this capacity merely to assist the manufacturer and benefit the public. Its voluntary opinion can have no higher standing before the courts, which alone have the power to finally determine questions of labeling, than would the opinion of any other expert. The opinion of the board in such cases must simply be regarded as the personal opinion of its members. Accepting the board's suggestion will give no man an immunity bath.

We are aware that this offer of expert advice will involve the department in great labor and many difficulties. But if by this method we can avoid unnecessary litigation, our increased burdens will be worth while. For such a result will save great sums, both to the government and to the manufacturers. These bills the consumer ultimately pays.

Are Pipe Lines Common Carriers?

There is pending before the Supreme Court of the United States a question of notable importance to the petroleum industry of the country, namely, whether the owners and users of pipe lines which convey crude oil, or the finished product, from one State to another, shall be regarded as common carriers of oil, and subject to the provisions of the Interstate Commerce act and to the control of the Interstate Commerce Commission, in being required to fix transportation rates for the carrying of oil in interstate commerce for anybody who shall offer oil for such shipment.

Early in the year a case went to the Commerce Court on an appeal from the decision of the Interstate Commerce Commission to test this question. The Interstate Commerce Commission had held, in an elaborate opinion, that the provision making pipe lines common carriers, and requiring them to report to the Interstate Commerce Commission changes in rates of transportation, should be enforced. The case went to the Commerce Court on an appeal for an injunction, filed by the Prairie Oil and Gas Company, the Uncle Sam Oil Company, Robert D. Benson and others, the Ohio Oil Company, the Standard Oil Company, and the Standard Oil Company of Louisiana. The object of this procedure was to enjoin the Interstate Commerce Commission from enforcing an order of the Interstate Commerce Commission holding the pipe lines to be common carriers.

After an elaborate argument in the Commerce Court, a decision was handed down by Presiding Judge Knapp, formerly a member of the Interstate Commerce Commission, which was concurred in by Judges Hunt and Garland of that court, and Judge Mack of the court dissenting.

In view of the fact that this case has been argued in the Supreme Court of the United States, and is now pending for decision, it is well to call attention to a few of the points made by Judge Knapp in the majority opinion of the Commerce Court, granting a preliminary injunction and declaring the act of Congress, making pipe lines common carriers, to be unconstitutional and a vision intended to secure the property rights of citizens of the United States. In discussing the question of the enforcement of private rights, Judge Knapp said:—

In attempting to apply these basic principles to the question now presented, we are led to observe at the outset the real significance of this amendment as disclosed by the intention with which it was enacted and the purpose which it seeks to accomplish. It does not undertake to regulate the business in which these private pipe line companies are and always have been engaged. Indeed, it assumes that the legal status of such companies, under the laws of the States of their creation and tested by the nature of their activities, was that of persons pursuing a private occupation, and it attempts by a legislative declaration to make that private occupation a public calling and to impose upon those who pursue it the duties and obligations of common carriers. Before the law was enacted their business was private, by force of the law itself that business is made public. Nothing which they were then doing is subjected to regulation, but they are in effect commanded to do something else which would be of public concern, and by simply declaring them to be common carriers they are made to devote their property to public use against their will and under the regulations prescribed by the act. Thus the owner of a private pipe line, which was built upon private rights of way, and which has been used solely for the transportation of his own oil, is required to open and extend its use to whomsoever may desire its emjoyment, no matter with what resulting inconvenience and injury to himself.

And this is concededly the intent and purpose of the amendment. It is not designed to regulate some public use to which private property has been voluntarily devoted, but it attempts by an act of legislation to transmute the agencies of private business into instrumentalities of public service. In aim and necessary effect it compels those private pipe line companies to relinquish the exclusive use for which their pipe lines were provided, and in which they have always been employed, and to place them at the disposal, for a compensation which public authority would have the right to determine, of all such persons as might tender oil for transportation. When the principle involved in this amendment is apprehended, when its far-reaching scope and power are perceived, does not the reflecting mind almost instinctively reject it as unsound and unjust? Is it not at variance with any reasonable conception of the rights and immunities of private property and the conditions under which it may be taken for public use? How can the conclusion be avoided that it operates and must operate to deprive the petitioners of their property without due process of law and to take that property without just compensation?

Upon principle and authority it is not to be doubted, and counsel for the government do not contend otherwise, that to effect an invasion of the right protected by the Fifth Amendment it is not necessary that the actual physical possession of property should be taken. It is sufficient if the owner be deprived of its exclusive use and enjoyment.

In concluding the opinion granting preliminary injunction, Judge Knapp said:—

We are impressed with the serious and unwelcome responsibility of invalidating in any respect an act of Congress, because it manifests an exertion of power in excess of constitutional limitations. But we cannot escape the conviction that this pipe line amendment, which we must construe according to its undoubted meaning, is an act of legislation which plainly invades the rights secured to these petitioners by the Fifth Amendment, and we cannot, therefore, do otherwise than stay the enforcement against them of the commission's order. Without reference to other considerations which might justify preliminary injunctions in these cases, we have purposely placed our decision upon grounds which in effect determine the controversy, and we have done so to avoid occasion for protracted trials and to aid an early review by the court of last resort.

A preliminary injunction will be granted as prayed for in each of the above entitled cases, and it is so ordered.

Following this action by the Commerce Court, the attorneys for the Department of Justice prepared and submitted a brief in the Supreme Court of the United States, and also presented the arguments supporting the contention made by those who approve of the legislation by Congress relative to pipe lines. The attorneys for the defendant pipe lines also filed briefs, and oral arguments were made on both sides before the court, and the cases are now awaiting the final decree of the high tribunal.

The Anti-Narcotic Bills.

The entire year was given to efforts in both houses of Congress to put through what is known as the general anti-narcotic bill, a measure that resulted from the opium conference at The Hague, and two opiumbills relating to smoking opium, and to importations and sale in interstate commerce of opium in any form.

Probably no matter of legislation has been more thoroughly threshed out in the committees of Congress, through the conferences held by representatives of the drug trades, whether manufacturers, wholesalers or retailers, as have these bills pertaining to opium, and the general measure covering habit-forming drugs, whether manufactured from opium or cocaine, etc. There was practically no opposition to the two opium bills, which passed the House during the special session of Congress, and they went through the Senate early in the beginning of the December session of 1913; but owing to the fact that these opium bills passed, with minor amendments, so late in the session before the holiday recess, it was impossible for the conference committees to consider them and make reports in time to secure final action in the two houses.

The general anti-narcotic bill has been subjected to more delay. This bill passed the House during the special session, at the same time when the two opium bills were put through that body. The Finance Committee of the Senate gave some attention to the general anti-narcotic bill, but it was unable to reach an agreement thereon because of certain questions arising as to the details of the bill and its phraseology relating to conditions which those who favored the measure sought to secure.

There have been at least a dozen different bills urged by the representatives of the government, and by the representatives of the trades connected with the Drug Trades Conference, and yet at the close of the year this subject was still open in the Committee on Finance of the Senate.

During the latter part of the summer The Hague Conference was renewed, and it became necessary for Dr. Hamilton Wright, and his associates of the delegation representing the United States at The Hague conference, to report on the progress toward final action on the measure intended to control the sale of opium, cocaine, etc., in interstate commerce. Dr. Wright had been active throughout the year in conferences with the legislative committee of the wholesale druggists, and the Executive Committee of the Drug Trades Council, and the bill was finally agreed upon by all the parties in interest. When this was accomplished, the work of Dr. Hamilton Wright, in connection with this opium legislation ceased, and he retired from the position he held in the State Department in connection with this work.

President Wilson and Secretary of State Bryan, following in the footsteps of their predecessors on this question, gave their indorsement to the anti-narcotic bill, in connection with other opium measures, to carry out the pledge which this government made to the various members in attendance at The Hague conference. The funds necessary to carry on the conference work were provided by Congress from time to time, and every agreement came about by the direct unanimity of opinion between the government representatives, including the State and Treasury Department officials, who are brought into connection with the traffic in these habit-forming drugs, as to the terms of the pending bill. At the time, however, when the general opium bills went through both houses, but failed of final perfection in passage, the anti-narcotic bill still slumbered in the Finance Committee of the Senate.

Much doubt has been expressed from time to time during the progress of this legislation in Congress, by the officials of the Department of Agriculture who are charged with the immediate duty of enforcing the food and drugs act, whether any satisfactory results can be obtained in Congress on this subject. At the same time the officials of the department desisted from their efforts to proceed in the direction of making regulations to govern the trade in habit-forming drugs, and the only steps taken by the department during the year having a bearing on this subject, was the recommendation to the Treasury Department, which was adopted, for certificates to accompany all importations of cocaine into the United States. The successful operation of this departmental order in the customs system is doubtful, and it probably remains for the passage of the general anti-narcotic measure to bring the relief desired. At the close of the year the situation in regard to the anti-narcotic bill seems to be of such nature as to give rise to the hope that the bill is soon to pass Congress. This is the opinion expressed by members of the Finance Committee of the Senate, of both parties, who have approved of the bill in general terms, and have promised to push the measure through at the earliets possible date.

The Sherley Amendment.

In the last Congress there was passed, it will be recalled, an amendment to the food and drugs act, based on a measure introduced by Representative Sherley of Kentucky, the object of which was to meet the situation presented as a result of a decision of the Supreme Court of the United States touching the question of alleged false representations as to the curative qualities of medicines sold in interstate commerce. This problem was long under consideration in both houses of Congress, and it was with difficulty that the committees framed an amendment which they thought would pass muster under the terms of the court decision in the celebrated Johnson case, in which the court held that there was nothing in the food and drugs act, as it then existed, which would penalize representations in regard to curative properties of medicines.

The Sherley amendment went into effect at the close of the last Congress, but it was not until late in August of 1913 that a case was brought to the attention of the officials in charge of the enforcement of the food and drugs act, which had a bearing upon the new provision of the law. As the matter was brought to the attention of the officials, being the first case under the so-called Sherley amendment, it was stated in an official report of the department on the subject, that:—

On June 14 there was seized at Denver, Colo., as a result of libel filed by the United States District Attorney upon request of the Department of Agriculture, eight cases of drug known as "Stramoline," which was labeled:—"A Specific for Asthma, all Throat and Lung Diseases, including Bronchitis, Bronchial Catarrh, Stubborn Coughs and Colds, also Catarrhal Conditions of the Stomach and Bowels AND TUBERCULOSIS (Consumption) in all its forms. THE GREATEST RESTORATIVE AGENT KNOWN."

The prosecution was based upon the charge that the product was misbranded in making claims that it was a specific for consumption, when, in fact, there was no medical ingredients known that would cure that disease, and, further, that the product contained no ingredients capable of the therapeutic effects claimed for it.

This medicine had been manufactured by the Stramoline Company, of Oklahoma City, Okla., and shipped on February 12, 1913, to Denver, a section sought on account of its climate by sufferers of consumption, with whom the product found a ready sale. No defense was made to this suit, and on July 23 a court decree issued for the destruction of the product. This case is noteworthy, because it is the first brought under the food and drugs act as amended by the Sherley amendment, which makes it an offense to transport interstate drug products which are branded in a false and fraudulent manner.

It will not be known until some case has passed through the courts, whether the Sherley amendment has cured the alleged defect in the original food and drugs act.

The Federal Net Weight Bill.

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passed by Congress during the closing hours of the session which ended March 4, 1913, was the so-called net weight amendment to the food and drugs act. This subject of net weights in commodities shipped in interstate commerce had been under consideration in both houses of Congress for several years. In finally passing upon this subject in the Senate, the conference report of the net weight amendment was nearly defeated, only five votes being recorded in the majority over the minority vote against it. Among the problems which were presented to the Senate in connection with the net-weight law, were the interests of the manufacturers of small packages, in which there were certain to be many reasons for exemptions; but the measure finally went through Congress and was approved in such form as to require, subsequently, an interpretation by the law officers of the government as to the scope of the net-weight bill.

This decision was finally given by the law officers as applying to the weights and measures described on labels which are placed on drugs shipped in interstate commerce. The text of this net-weight amendment, which, together with the statement made with respect to the operations of the general food and drugs act, which was so amended by the incorporators of the net weight provision, is as follows:—

Be it enacted, etc., that section 8 of an act entitled "An act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors and for regulating traffic therein, and for other purposes," approved June 30, 1906, be, and the same is hereby, amended by striking out the words, "Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package," and inserting in lieu thereof the following:—

"Third. If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count: Provided, however, that reasonable variation shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of section 3 of this act."

Section 2. That this act shall take effect and be in force from and after its passage: Provided, however, that no penalty of fine, imprisonment, or confiscation shall be enforced for any violation of its provisions as to domestic products or foreign products imported prior to eighteen months after its passage.

Under section 3 of the Pure Food and Drugs law the Secretaries of Agriculture, the Treasury, and Commerce are authorized to make regulations providing for the enforcement of the act, and such regulations have been prescribed from time to time. Under the new amendment to the law these Secretaries are authorized to make regulations providing for the enforcement of the act, and such regulations have been prescribed from time to time. Under the new amendment to the law these secretaries are authorized to make rgulations under which variations and also exemptions as to small packages shall be permitted in interstate commerce. The law authorizes a period of eighteen months to elapse before any enforcement of penalties thereunder, in order to give the various trades opportunities to submit facts upon which the proposed regulations shall be framed.

Oleomargarine Legislation and Taxation.

So far as information has been obtained by those who are interested in oleomargaine legislation, practically no progress was made during the year, and the legislation which was deadlocked in the Committee on Agriculture of the House, in the last Congress, remains in that condition in the present Congress.

This subject of oleomargarine legislation, in an effort to abate the rigors of the high taxation of oleomargarine colored in semblance of butter, has been occupying the attention of the committees of Congress for more than three years. At one time, about two years ago, it was thought certain that if the bill could be reported from the Committee on Agriculture that it would promptly pass the House of Representatives by a large majority, and that there would be a substantial reduction in the tax on colored oleomargarine, in the interests of the development of a cheaper substitute for butter, which substitute is in demand among the laboring element of the larger cities, and in the mining, lumbering and large industrial fields of the country. Many weeks were spent in hearings on the subject, in which the friends of a lower internal revenue tax were heard in support of their propositions. But the friends of the dairy interests united in such a vigorous opposition to the changes proposed, that a tie vote was recorded in the committee and it was impossible to get an oleomargarine bill in any form reported from the Committee on Agriculture.

During the special session of Congress, when other matters occupied the time of the Federal legislators, it was impossible to secure the attention of the Committee on Agriculture to any of the pending bills. It is certain, however, that this subject will be debated anew in the present Congress. Some measure, along the lines of others that have been proposed in bills for reducing the taxation on colored oleomargarine, seeking to prevent what is alleged to be a fraudulent imposition upon the public of oleomargarine colored in the semblance of butter, will be so safeguarded that oleomargarine can only be sold in packages, marked and stamped to indicate what the article really is.

A vast amount of statistical information has been presented to the Agricultural Committee of the House, showing the great benefits which would accrue to the cattle industry, and to the producers of edible cottonsed oil, which is used as an ingredient in the manufacture of oleomargarine, from the reduction in what is proved to be practically a prohibitive tax of 10 cents per pound upon colored oleomargarine.

During the early part of the year there was considerable discussion of how oleomargarine manufacturers were alleged to have evaded the 10 cent tax on the colored product. This subject was the result of an investigation by the Committe on Expenditures in the Treasury Department for the House of Representatives. The committee made several reports covering the question of the alleged failure on the part of the oleomargarine manufacturers to pay the tax assessed against them, namely, the difference between ¼ of a cent a pound on oleomargarine uncolored, and the 10 cent tax on the colored product. A majority report of this committee insisted that about a dozen oleomargarine manufacturers had sought to evade the tax by manipulation of the formula in the production of oleomargarine, and that they had defeated the aims of Congress in an amount aggregating more than a million dollars. It was said in connection with this report that a few of the oleomargarine manufacturers had admitted that they were perhaps indebted to the government in sums running from $10,000 to $25,000, but they ridiculed the idea of any such amount being owed to the government as was claimed by the majority of the committee.

The result of this controversy was a wide difference of opinion between the members of the committee of Congress and the Treasury officials, in regard to what procedure should be taken in adjusting the differences over the amount of taxation on colored oleomargarine. The Treasury Department elected to test the matter in the courts of the West, where most of the oleomargarine manufacturers were alleged to have violated the law, or to have evaded it in some form in the conduct of their business.

The New Department of Labor

With the opening of the new administration the duty devolved upon President Wilson, in the creation of his Cabinet, to name a new Secretary of Labor, in conformity with the law of Congress, earlier in the year, for the creation of the Department of Labor. This department was fully organized immediately after the new administration took possession of the affairs of the Government, after the 4th of March.

The new Department of Labor is really a "split-off" from the former Department of Commerce and Labor, the idea being to segregate in the Department of Labor a number of bureaus and divisions of the Government that are supposed to treat directly or indirectly with matters pertaining to labor and industrial questions generally.

Under the provisions of the new law creating a Department of Labor, a secretary was provided to be a member of the President's cabinet. Three assistant secretaries were approved, and a solicitor; also chief clerks and other heads of divisions having to do with the administration of the affairs of the department.

In organizing the new Department of Labor, there were transfers from the Commerce Department and from other departments, bureaus and divisions provided by law to be a part of the new Department of Labor. These included the office of the Commissioner General of Immigration, the Bureau of Immigration, as well as the immigration service at large, and the Bureau of Labor, which was a part of the older Commerce Department. This Bureau of Labor becomes, as a part of the new department, the Bureau of Labor Statistics, which is charged with the duty of making investigations into labor conditions, wages, and prices, just as was the case when this bureau was a part of the Commerce Department. One part of the work which is to be done by this Bureau of Labor Statistics, includes the duties imposed under the so-called Erdman law.

Another important feature of this new Department of Labor is that the Secretary of the Department is authorized to act as mediator and to appoint commissioners to take part in efforts to conciliate disputes. During the year a number of controversies between labor and capital have been brought to the attention of the department, and commissioners have been appointed in a number of instances to investigate the cases and attempt to bring about reconciliation in industrial disputes.

The New Insecticide Act

Considerable activity has been manifested by the board created in the Department of Agriculture, to carry out the provisions of the law against adulteration and misbranding of insecticides and products of that character.

Early in the year the Secretaries of the Treasury, Commerce and Agriculture, acting as the authority in which was reposed by Congress the duty of making regulations for the enforcement of the insecticide law, the same as was done in the pure food and drug law, made a change in paragraph A, of regulation 14, respecting the definition of "fungi," in section 6 of the act. Under this definition the term was construed to mean all plants of the lower order, such as moss, liverworts, and all plants which comprise rusts, smuts, milldew, molds, yeasts, bacteria, etc.

With the comparatively few changes made in the regulations modifying the enforcement of the insecticide law, the board has been busy in passing upon the great variety of cases brought by the inspectors in the field, and a number of judgments have been enforced in the courts against shippers of insecticide and fungicide products alleged to be in violation of the terms of the law. For the most part these cases have been directed against misbranded insecticides, or products of that character that are adulterated by the improper use of ingredients, or the lowering of the standard of efficiency of such insecticides, in violation of the letter and spirit of the act.

The department officials speak in terms of satisfaction with the operation of the insecticide law, and no intimations are given of a desire that this act shall be amended in any way by Congress in the immediate future.

Notes.

Considerable interest has been displayed in many parts of the country during the year, in the possible outcome of contested cases brought to test questions as to whether Congress exceeded its authority in the legislation passed in the last Congress restricting interstate commerce in liquors shipped from one State into another, in violation of the prohibition or local option laws of the latter State. There have been a number of efforts by Congress to restrict this interstate trade in liquors, and decisions by the Supreme Court of the United States have generally upheld this legislation, although on technical grounds, applying to the character of the laws passed, or the nature of the shipments, some of these efforts to restrict interstate traffic in liquor have been vetoed by the higher court. Suits have been instituted in a number of districts, but no case has yet been brought to the attention of the higher court.

Some interesting developments in the trade between the United States and South American countries were brought out during the year, chiefly as aresult of the policies adopted by some of these countries, notably Argentina, intended to restrict importations of cottonseed and cottonseed products for reasons pertaining to the industrial and fiscal development of that country. The remarkable success which Argentina has enjoyed in the development of her local industries, and extending her export trade, has made that nation singularly independent, and it has been remarked by some of the officials of that country that Argentina now regards herself as practically "outside of the concert of American powers," which has been maintained by the "Pan-American Union." Argentina is endeavoring to develop the cotton-producing industry, and also to encourage the importation of olive oil by reducing the duty on that product in the interests of the working people of that country, who demand lower prices for imported olive oil. The procedure with respect to these new policies in South America is not yet sufficient evidence to indicate just what the results will be upon the trade of the United States with those countries.

The government experiments and investigations to increase the possibilities of fertilizer production in this country, have been continued under the auspices of the United States Geological Survey and the Bureau of Soils in the Department of Agriculture. Legislation has also been proposed in Congress for obtaining nitrogenous factors from the air. The reports thus far made by the various bureaus of the government regarding the possible production of ingredients for fertilizer have indicated that the prospects are favorable for producing fertilizer in quantities sufficient to meet the domestic demands, rather than leaving this country to depend upon foreign importations.

Litigation over vast quantities of petroleum-producing lands of Pacific Coast and in the Wyoming districts, is before the Supreme Court of the United States. The controversies arose over the question whether the Federal government, in its reservations of mineral lands, properly included in such reservations oil-producing lands. The cases on this subject have been argued before the Supreme Court of the United States and await decision.

Practically no progress was made during the year in the matter of amendments in the patent laws. Measures which were introduced in the last Congress have come over for consideration by this Congress, but no progress has been made with respect to them up to this time. The pending propositions include a drastic revision of the patent laws, and there continues to be a discussion as to the advisability of restricting the force and effect of patents granted to only such patents as are worked; the object being to take away the rights to patents where the patented article is withheld from public use.

Flaxseed Markets

MINNEAPOLIS.

The year in the flax market was uneventful. Owing to the high prices prevailing during the previous year and the promise of a smaller crop for this year, the farmers were inclined to hold bullish views of the situation and failed to market their product promptly when gathered, although weather conditions for harvest and threshing were ideal. When the year opened most of the big buyers were loaded up with high priced oil and crushers had seed on hand to make the oil, but the less active commercial situation caused a smaller demand than anticipated and the market began to sag off, getting to a pretty low level when the 1913 crop was ready to deliver.

The government crop reports on yields were regarded a trifle high by most of the crushers, and before the fall movement was half over most of them began to lay in raw supplies to last them through the season. In the early fall considerable oil was taken for delivery after the first of the year, and this was somewhat of a stimulant on the market, too. There was considerable fear of a deluge of Canadian offerings to come, but European buyers took or engaged most of the small output on that side of the line, and the domestic markets were free to sympathize with the bullish Argentine advices, which came after the trade was led to believe that there was to be a bumper crop in that country and no choice of doing any export business in either seed or oil. At the close of the year the situation was very strong, with the marketing very light and prices on the advance.

The quality of the crop last year was about as good as any that was absorbed in this market. North Dakota seed was prime and plump, having ripened under ideal weather conditions. Montana seed was very pretty to look at and of very good quality, but as far as actual pressing worth was concerned it was thin and poor in oil, showing a very wide range in quality and making it hard for shippers in this State to do any trading on the arrive basis. In most of the Minnesota seed there was a heavy mixture of watergrass seed, and this combination was not to be desired, so on the whole the Minnesota crop was a poor one to market under the conditions prevailing. Crushers were interested in choice seed at any time. When they were not busy crushing they had enough confidence in the situation to lay up a little stuff in store.

The domestic market grew strong enough around the first of the year to attract a little Canadian seed, and several fair sized lots were taken on the to arrive basis by local crushers. Some stuff was consigned, too. Although the quality of the Canadian seed was good, there was little, if any, improvement over the North Dakota or Montana seed.

Toward the last of the year the country movement fell off very sharply, and crushers began to worry over their season-end supplies, and prices began to gain on the May future. Offerings of choice North Dakota or Montana seed were in ready demand at any time, but diminished gradually until only scattering lots were for sale.

Monthly range of closing prices of November seed at Duluth during the calendar year 1913, with comparisons of the previous year, follows:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	—@—
July	—@—	$1.75½@1.83½
August	$1.42¼@1.52¾	1.67 @1.73
September	—@—	1.57 @1.67
October	—@—	1.48 @1.64
November	1.32⅝@1.39½	1.26 @1.43
December	—@—	—@—

Monthly rasge of closing prices of December seed at Duluth during the

GULF REFINING CO.

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General Office:

Frick Building Annex, = PITTSBURGH, PENNA.

calendar year 1913, with comparisons of the previous year, follows:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	—@—
July	—@—	—@—
August	$1.44½@1.52½	$1.63½@1.68
September	1.36 @1.48½	1.52½@1.63
October	1.32¾@1.41	1.44½@1.59
November	1.32¼@1.39	1.26 @1.39¼
December	1.37½@1.46	1.21 @1.26

Receipts of flaxseed at Duluth during the calendar year 1913, with comparisons of the previous year, follow:—

	1913	1912.
January	1,113,463	688,992
February	189,596	312,733
April	187,812	137,211
May	494,116	461,198
June	779,596	246,518
July	1,742,992	353,853
August	581,951	46,670
September	466,779	228,783
October	2,602,709	2,084,142
November	2,763,067	6,408,105
December	1,153,440	3,432,616
Totals	12,434,664	14,567,678

Receipts of bonded flaxseed totaling 4,006,545 bushels during 1913 and 1,035,768 bushels during 1912 not included in above figures.

Shipments of flaxseed from Duluth during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	332,692	650,866
February	45,513	644,834
March	32,522	208,442
April	280,619	183,913
May	1,306,964	592,337
June	832,174	381,173
July	1,688,564	268,547
August	1,268,867	168,213
September	1,237,163	258,287
October	1,735,673	1,135,189
November	1,751,915	5,573,410
December	2,671,663	3,676,434
Totals	13,184,129	13,741,645

Shipments of bonded flaxseed, totaling 3,806,396 during 1913 and 850,642 during 1912, not included in the above figures.

Receipts of flaxseed at Chicago during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	188,000	175,900
February	238,000	103,900
March	98,000	199,200
April	64,000	129,400
May	351,000	227,400
June	38,000	129,400
July	155,000	112,600
August	240,000	46,600
September	31,000	196,900
October	106,000	118,300
November	262,000	206,900
December	1,032,000	652,000
Totals	2,803,000	2,298,500

Shipments of flaxseed from Chicago during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	51,000	63,000
February	17,000	83,700
March	26,000	76,900
April	22,000	44,200
May	2,000	16,300
June	.....	8,000
August	3,000	2,100
September	2,000	17,700
October	6,000	34,000
November	7,000	40,000
December	.....	4,000
Totals	138,000	409,100

Receipts of flaxseed in Minneapolis during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	1,450,480	530,790
February	1,246,480	459,300
March	1,056,760	397,460
April	742,360	468,040
May	518,070	570,920
June	514,130	439,520
July	432,050	487,200
August	280,840	160,000
September	736,130	699,870
October	1,686,090	1,657,440
November	1,505,460	1,520,020
December	1,130,770	2,244,700
Totals	11,319,620	9,635,260

Shipments of flaxseed from Minneapolis during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	296,580	141,710
February	199,000	264,428
March	270,680	110,040
April	154,900	110,030
May	90,790	139,000
June	111,560	110,270
July	121,680	60,590
August	53,890	25,590
September	105,510	133,970
October	199,090	366,010
November	168,990	616,130
December	102,120	253,020
Totals	1,875,090	2,209,410

Receipts of flaxseed at Winnipeg during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	1,666,350	393,000
February	717,150	589,000
March	874,650	403,000
April	965,900	464,000
May	2,528,400	666,000
June	2,249,100	933,000
July	1,201,200	1,046,000
August	658,350	275,000
September	606,100	133,350
October	2,324,300	1,606,500
November	3,818,100	3,542,700
December	2,537,700	3,242,400
Totals	20,145,300	13,293,950

These figures are based on the Winnipeg inspection and for the year 1913 an average of 1,050 bushels to the car is allowed from January 1 to September 1. From September 1 to December 31 an average of 1,100 bushels to the car is allowed.

Shipments of flaxseed from Ft. William and Port Arthur, Canada, during the calendar year 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	681,113	240,429
February	539,327	411,620
March	145,620	223,978
April	547,099	100,592
May	1,467,035	1,241,790
June	1,860,538	768,780
July	4,351,120	636,845
August	1,785,009	827,653
September	525,682	333,840
October	1,867,611	233,496
November	2,502,755	2,702,756
December	3,020,251	1,902,400
Totals	19,299,650	9,684,178

The monthly range of closing prices for September seed at Duluth during the calendar year 1913, with comparisons of the previous year, follows:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	$1.31⅛@1.36⅝	$1.97 @2.12
July	1.36⅝@1.42¼	1.80 @2.04½
August	1.42 @1.53⅝	1.72½@1.82
September	1.38¼@1.49½	—@—
October	—@—	—@—
November	—@—	—@—
December	—@—	—@—

Monthly range of closing prices for October seed at Duluth during the calendar year 1913, with comparisons of the previous year, follows:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	$1.31 @1.34¼	$1.90 @1.90
June	1.30⅝@1.36¾	1.90 @2.00
July	1.35½@1.42½	1.76 @1.93
August	1.41¾@1.53	1.69 @1.74
September	1.38¼@1.50½	—@—
October	1.33⅜@1.41¼	—@—
November	—@—	—@—

Stocks of flaxseed in public store the first of each month during 1913 at Minneapolis and Duluth follow, in bushels:—

	1913.	1912.
January	320,040	1,856,887
February	413,259	2,830,556
March	461,373	3,881,949
April	496,789	4,812,745
May	361,470	4,899,598
June	201,522	3,793,444
July	145,816	3,218,892
August	101,540	2,283,071
September	36,643	1,539,864
October	54,451	772,807
November	115,917	1,637,096
December	237,773	2,668,867

Shipments of linseed oil in pounds from Minneapolis during 1913 and 1912 were as follows:—

	1913.	1912.
January	15,922,387	8,589,054
February	15,296,877	10,285,181
March	16,994,863	12,717,186
April	24,173,170	12,919,481
May	16,212,941	14,919,481
June	14,004,762	13,095,110
July	13,581,561	11,247,957
August	12,094,445	11,033,461
September	15,336,024	14,939,538
October	15,283,532	14,993,585
November	12,120,067	15,312,789
December	11,494,210	14,361,125
Totals	182,523,729	14,8050,114

Shipments of linseed oil from Minneapolis during 1913 and 1912, in pounds, were as follows:—

	1913.	1912.
January	35,987,297	26,590,741
February	32,949,410	22,864,836
March	29,716,343	19,424,973
April	33,072,490	20,890,332
May	36,208,580	22,496,886
June	28,588,409	20,600,267
July	25,298,967	25,176,185
August	24,965,925	16,580,956
September	17,301,064	21,553,531
October	32,528,339	34,770,096
November	31,131,598	35,515,787
Totals	361,988,376	299,738,376

DULUTH.

It is needless to say that the year 1913 was a most unusual one in the flax market. As compared with the year previous it was a "buyers'" year for the price has been so low that it has puzzled many in the flax game and at the same time has created a bear market up to a late date in the year, when it has been developing into a bull market. The flax yield, while heralded as ample, and even more than that, is, as a matter of fact, still problematical, for crushers and speculators are out of the market except in a spasmodic way. As a matter of fact, the early predictions that the crop would be short seem to be coming true, even after the sanguine reports of the earlier part of the crop year. It is rather unfortunate that the United States Department of Agriculture has quit issuing bulletins, and for that reason it cannot be learned what the full statement of the flaxseed issue is, as found by the experts of the department. The only estimate issued is that instead of the issue of 1912 of more than 28,000,000 bushels, 1913 has given to the crushers and the others concerned only 19,234,000 bushels.

Consequently the price of flax has gone up at the latter end of the year, but, as a matter of fact, it has gone to a much lower level than that of 1912 when there was but a little more than a difference of 100,000 bushels in production. Of course the Canadian crop has been a strong factor in this influential strength of the price, but the crop in Canada is getting short.

At times Argentine has figured in the market to a considerable extent, but this has been only for brief periods for the reason the Argentine and its crop have been much more of a mystery than the domestic crop. So it has become practically assured that there is a severe shortage, and that flax is going higher. As compared with one year ago, the range of prices, it will be seen, were higher as soon as the calendar year of 1913 opened, and continued to range that way, the higher prices of the corresponding period of 1912 having reduced materially—practically rendered nil, in fact, and the increase starting again at the first of 1913 more as a matter of precaution than anything else. In March, 1913, there came a decided period of weakness, however, for the reason that with the beginning of winter's breakup, there started a movement of flax into the terminal markets that the price was materially affected. There really was not much of any change—not enough worthy of comment—until in June, when an advance occurred, and this lasted throughout July, August and September, with but slight setback. This advance was caused purely by estimates made by private inquiry, private, so to speak, being the inquiry by grain firms interested and having correspondents here and there throughout the flax belt. This flax belt comprised the trans-Missouri country in North Dakota, and Eastern Montana, the latter part being expected to produce largely. It has turned out since, that this expected production did not materialize.

There was something of a setback in October and November, but an upward rise began again in December, which, while gradual, displayed a stubbornness that seemed to indicate higher levels for the crop year.

The following table is compiled from figures published by the United States Secretary of Agriculture:—

	Acreage.	Production in bushels.	Farm value per bushel Dec. 1.
1913	2,291,000	19,234,000	.....
1912	2,851,000	28,073,000	$1.15
1911	2,757,000	19,370,000	1.82
1910	2,467,000	12,718,000	2.32
1909	2,083,000	19,513,000	1.53

The monthly range of closing prices for cash seed on the Duluth market in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	$1.32½@1.22⅝	$2.10 @2.22
February	1.28¾@1.39	2.00 @2.13½
March	1.23¼@1.28¾	2.00¼@2.13½
April	1.22 @1.35½	2.14½@2.18¾
May	1.27⅜@1.32⅝	2.13 @2.34
June	1.29⅛@1.35⅝	2.20 @2.36½
July	1.35 @1.41¾	1.80 @2.20⅜
August	1.41⅝@1.53⅛	1.72½@2.00
September	1.39⅜@1.51	1.67 @1.84
October	1.33¼@1.42⅜	1.49 @1.74¼
November	1.34⅛@1.41	1.27 @1.44
December	1.39⅜@1.48⅜	1.22 @1.26⅜

The monthly range of prices for cash seed at Minneapolis in the same year, with comparisons from the previous year, follow:—

	1913.	1912.
January	$1.23⅝@1.33¾	$2.08 @2.19
February	1.28½@1.40	2.01 @2.12½
March	1.23¼@1.29	2.01¼@2.13½
April	1.23⅛@1.35½	2.13½@2.17½
May	1.27¼@1.32⅜	2.12½@2.28⅛
June	1.27⅜@1.33⅞	2.16 @2.36
July	1.32½@1.41¾	1.80 @2.17⅜
August	1.40 @1.53	1.72½@2.00
September	1.36¾@1.51	1.58 @1.84
October	1.33¼@1.43	1.46 @1.77½
November	1.31⅛@1.41	1.27 @1.41
December	1.36½@1.48⅞	1.22 @1.27¼

The monthly range of closing prices for May seed at Duluth, compared with the closing prices in 1912, follow:—

	1913.	1912.
January	$1.26⅝@1.35	$2.08 @2.21½
February	1.29½@1.41	2.01 @2.11½
March	1.24¾@1.30¼	2.01¼@2.13½
April	1.24½@1.35	2.14½@2.18¾
May	1.27½@1.32¾	2.16½@2.68
June	—@—	—@—
July	—@—	—@—
August	—@—	—@—
September	—@—	—@—
October	1.33 @1.46¼	—@—
November	1.37½@1.44¾	1.32 @1.43½
December	1.43⅝@1.51⅝	1.21 @1.26

The monthly range of closing prices for July seed for 1913, as compared with the previous year, follows:—

	1913.	1912.
January	$1.35⅝@1.36¾	—@—
February	1.31 @1.42½	—@—
March	1.26⅝@1.30⅝	2.01¼@2.12
April	1.20½@1.37½	2.09½@2.15½
May	1.29¼@1.34½	2.12½@2.24
June	1.28⅛@1.34½	2.20 @2.36½
July	1.33 @1.40¾	1.85 @2.20¾
August	—@—	—@—
Septemeer	—@—	—@—
October	—@—	—@—
November	—@—	—@—
December	—@—	—@—

The monthly range of closing prices for September seed at Duluth in the calendar year of 1913, as compared with that of the previous year, follows:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	$1.28⅛@1.39½	—@—
May	1.32 @1.37	—@—
June	1.31 @1.36	$1.97 @2.12
July	1.36¾@1.42¼	1.80 @2.04½
August	1.42 @1.52⅝	1.72½@1.85
September	1.38¼@1.49½	1.66¾@1.82
October	—@—	—@—
November	—@—	—@—
December	—@—	—@—

The monthly range of closing prices for October seed at Duluth in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	$1.28 @1.38¾	—@—
April	1.28 @1.38¼	—@—
May	1.31½@1.37	$1.90 @1.90
June	1.31 @1.36⅝	1.90 @2.00
July	1.36⅞@1.42¼	1.76 @1.93
August	1.42¼@1.53	1.69 @1.74
September	1.38¼@1.50¾	1.58 @1.69
October	1.35 @1.41¼	1.48 @1.67½
November	—@—	—@—
December	—@—	—@—

The monthly range of prices at the close for November seed at Duluth in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	—@—
July	$1.37½@1.42¼	$1.75½@1.83½
August	1.42⅝@1.53	1.67 @1.73
September	1.39¼@1.57	1.57 @1.67
October	1.33¾@1.42¼	1.48 @1.64
November	1.32⅝@1.39½	1.26 @1.43
December	—@—	—@—

The monthly range of closing prices for December seed at Duluth in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913.	1912.
January	—@—	—@—
February	—@—	—@—
March	—@—	—@—
April	—@—	—@—
May	—@—	—@—
June	—@—	—@—
July	—@—	—@—
August	$1.39⅝@1.52¼	$1.63½@1.68
September	1.36 @1.48½	1.52½@1.63
October	1.32⅝@1.40	1.44½@1.59
November	1.32¼@1.39	1.26 @1.39¼
December	1.37½@1.46	1.21 @1.26

Receipts at Duluth by months in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913. Bushels.	1912. Bushels.
January	1,113,463	688,992
February	190,596	312,733
March	359,143	137,211
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November	2,763,067	6,408,105
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April	154,900	111,030
May	90,790	139,040
June	111,560	110,270
July	121,680	60,590
August	53,890	25,590
September	105,510	133,970
October	199,090	366,010
November	168,990	616,130
December	102,120	253,020
Totals	1,875,090	2,209,410

Receipts of flax as inspected at Winnipeg in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913. Bushels.	1912. Bushels.
January	.....	393,000
February	.....	589,000
March	.....	403,000
April	.....	464,000
May	.....	666,000
June	.....	933,000
July	.....	1,046,000
August	.....	275,000
September	.....	133,350
October	.....	1,606,500
November	.....	3,542,700
December	.....	3,242,400
Totals	.....	13,293,950

Receipts of flaxseed at Chicago in the calendar year of 1913, with comparisons of the previous year, follow:—

	1913. Bushels.	1912. Bushels.
January	188,000	175,900
February	238,000	103,900
March	98,000	199,200
April	71,000	129,400
May	344,000	227,400
June	38,000	129,400
July	155,000	112,600
August	240,000	46,600
September	31,000	196,900
October	106,000	118,300
November	262,000	206,900
December	1,930,000	652,000
Totals	2,801,000	2,298,500

Shipments of flaxseed from Chicago in the calendar year of 1913 ,with comparisons of the previous year, follow:—

	1913. Bushels.	1912. Bushels.
January	51,000	63,000
February	17,000	83,700
March	26,000	76,900
April	22,000	44,200
May	2,000	16,300
June	2,000	19,200
July	.....	8,000
August	3,000	2,100
September	2,000	17,700
October	6,000	34,000
November	7,000	40,000
December	.....	4,000
Totals	138,000	409,100

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Receipts of flaxseed at Port Arthur and Fort William, Ont., for 1913:—

January	2,307,155
February	522,433
March	407,812
April	374,859
May	2,276,997
June	2,605,277
July	1,826,278
August	1,035,531
September	443,237
October	2,057,550
November	3,538,822
December	2,837,424
	20,293,346

Stocks of the seed in store in Duluth and Minneapolis elevators on the first day of each month in 1913 were:—

	Duluth.	Minneapolis.
January	2,490,000	321,000
February	3,308,000	413,000
March	4,388,000	461,000
April	6,073,000	471,000
May	4,337,000	361,000
June	3,382,000	197,000
July	3,181,000	116,000
August	2,330,000	102,000
September	1,004,000	40,000
October	826,000	69,000
November	1,727,000	116,000
December	1,068,000	238,000

CHICAGO.

Never in the history of the Chicago market, which ranks first as a distributor of grains and has been handling liberal quantities of seeds up to recent years, has the business in flaxseed been of as small volume as during 1913. As a distributor of flaxseed this market has retrograded of late years, and the year recently closed proved no exception. In fact, there was even a lighter trade during that period than at any time since Chicago ceased to be one of the principal distributive points of the flaxseed crop produced by the United States as well as Canada.

Little interest was shown by handlers of cash seed because of an almost entire absence of inquiries from crushers located at this, as well as points tributary to this market that would produce proper remuneration for the time and expense incurred in attracting shipments to this market. Chicago crushers have been in this market for flaxseed on a small scale of late years, the business at which times seemed so small that those interested could not conceive the idea that it would be further reduced in the matter of volume, but the actual transactions made here during 1913 were the smallest ever recorded. To make matters worse users of flaxseed show no inclination to revive the business at Chicago, which they might do by entering this market with requests for seed they are purchasing in other sections. One of the drawbacks that prevents the passing of an enlarged flaxseed business at Chicago is the distance it is from the section in which the crop of the United States is raised, which prevents handlers here being able to make as advantageous offers to users as can be secured at points nearer producing sections.

There was an increase in the amount of flaxseed absorbed by Chicago crushers, the shipments to these people being approximately 3,800,000 bushels, an increase of 1,500,000 bushels over the amount used by them in 1912. The profits gained in the distribution of this amount of seed was divided almost entirely among the cash handlers of the Northwest, and existing conditions at the close of the year suggested that they would reap the benefits in the future unless something now invisible turns up that would bring about a complete reversal of sentiment here.

The lightness of the trade in flaxseed at Chicago, resulting largely from the fact that crushers refused to become interested, may best be described by the report of the local inspection bureau, which was called upon to grade only five cars of this seed during the year of 1913. This amount proved a record low figure, and it is doubtful if another period will be seen in which such a small amount will undergo the scrutiny of the inspectors at Chicago.

The following table shows the detailed monthly inspection of flaxseed received at Chicago during 1913, with comparative totals:—

FLAXSEED (CARS).

	No. 1.	Rejected.	No grade.	Total.
January	....	.....	.....	.....
February	....	.....	.....	.....
March	3	.....	.....	3
April	....	.....	.....	.....
May	2	.....	.....	2
June	....	.....	.....	.....
July	....	.....	.....	.....
August	....	.....	.....	.....
September	....	.....	.....	.....
October	....	.....	.....	.....
November	....	.....	.....	.....
December	....	.....	.....	.....
Totals	5	.....	.....	5
Totals, 1912	24	12	2	38
Totals, 1911	35	6	3	44

The few cars of flaxseed received here generally had to be carried several days before they were finally disposed of because of crushers absenting themselves during the greater part of the time. Local feed dealers took what little seed was offered here and the only quotations obtainable were the prices agreed upon, and which were generally based on values ruling in the Northwestern markets at the time the transactions took place. Because of these conditions, and the fact that the seed was generally sacrificed in order to dispose of it, it was impossible to make any comparison of prices for the year. Small-bag lots were received and sold here at various times, but the quantities were generally so small that they received but passing attention.

Mills at Chicago numbered only four during the year, several having been closed down, and the capacity of these was placed at approximately 4,000,000 bushels, showing that these people received the greate amount of the seed coming to Chicago, as the shipments made from this market were lighter than the preceding year.

Comparative receipts and shipments of flaxseed at Chicago for 1913 and the two previous years:—

RECEIPTS.

	1913.	1912.	1911.
January	188,000	175,900	49,500
February	238,000	103,900	96,000
March	825,000	199,300	47,000
April	71,000	129,400	27,500
May	344,000	227,400	41,400
June	305,000	129,400	125,700
July	155,000	112,600	56,800
August	240,000	46,600	72,900
September	31,000	196,900	54,600
October	106,000	118,300	122,100
November	262,000	206,900	121,600
December	1,030,000	652,000	144,400
Totals	3,793,000	2,298,500	959,500

SHIPMENTS.

	1913.	1912.	1911.
January	51,000	63,000	11,500
February	17,000	85,700	12,700
March	98,000	76,900	6,000
April	22,000	44,200	7,500
May	2,000	16,300	11,200
June	38,000	18,200	11,650
July	.....	8,000	15,850
August	3,000	2,100	2,400
September	2,000	17,700	16,000
October	6,000	34,000	52,000
November	7,000	40,000	12,600
December	.....	4,000	6,400
Totals	246,000	409,100	165,600

The delaying of purchases by local crushers who were awaiting developments in the Northwest, as well as abroad, in the hope that something might develop in the markets of this country or in Argentina that would enable them to secure the amount of seed they required at lower prices than those prevailing was responsible for the heavy receipts of flaxseed at Chicago during the month of December. Instead of an improvement in the outlook at home and abroad conditions assumed a more bullish aspect as the crops were harvested, which forced crushers to enter the markets of the Northwest and purchase freely in order that they might have enough seed on hand to meet requirements of the linseed oil and cake trade. The imports of flaxseed were about two-thirds those of 1912, and were also lighter than in 1911. The falling off in the imports of flaxseed was due to a good crop in 1912, the production during that year having reached proportions where little foreign seed was required. The falling off in the production of the United States was larger than was at first anticipated and there was a lighter yield in Canada.

The government final crop report follows:—

	1913.	1912.	1911.
Production—			
Acres	2,291,000	2,851,000	2,757,000
Average yield	7.8	9.8	7.0
Total bushels	17,853,000	28,073,000	19,370,000
Farm val., per bu	$1.20	$1.15	$1.82

The reduced yield in the United States and Canada promises an increase in the imports of flaxseed during the year 1914, the stock in the principal markets of this country being less than half those held at the close of 1912. A noticeable feature, and which further impresses the dullness of the flaxseed market at Chicago, is the fact that there has been no flax carried in regular houses here. This is probably the first time in the history of the trade that even a small amount was not held in regular storage houses at some time or another during a like period.

One of the reasons advanced for the smaller area sown to flaxseed was that growers did not deem the prices obtained for this seed as proper remuneration for the labor and money expended in producing their crops. The necessity of a crop of large magnitude in order to meet the requirements of the American trade is fully realized by many and it seems probable that some steps will be taken by the government to increase the interest of growers, and crushers will undoubtedly make efforts to induce these people to pay more attention to the growing of flaxseed than they have of late years. With lighter yields of flaxseed in America and Argentina the prices obtainable for flaxseed during the year now fairly started will show an improvement over last year, and this might serve as an inducement that will cause growers to spend more of their time and use more of their land in growing flaxseed.

There was a comparatively light trade in futures late in the year. Both sides of the market seemed to possess entirely different views on the price question and they steadfastly refused to make concessions that would result in an increased trade in futures. The general opinion at the close of the year was that users of linseed oil had not secured enough oil to meet their future requirements and higher prices are expected when these people enter the market with orders for oil they will be required to use at a later day.

Prices ruling in the market for linseed oil cake were the lowest in some years, but the trade at Chicago was of small dimensions. Domestic feeders took small quantities early in the year, but the closing months were dull because of the open winter which curtailed the feeding of linseed cake. A good yield of corn in this country also restricted the demand for linseed cake in this country. This market received little attention from foreigners because of the more favorable rates they were able to secure at points nearer producing centers, due to better shipping facilities and more favorable shipping rates obtainable in the Northwest. Prices ranged during the year between $24@30 per ton f. o. b. this market.

WINNIPEG.

There are no very accurate figures available as to the flax yield in Canada in 1913. Estimates made by the Federal government, the provincial governments and others differ greatly. The latest statement of the census and statistics office, Ottawa, placed the production for all Canada during the year at 17,539,000 bushels on an area of 1,552,800 acres. Its aggregate value is placed at $17,084,000. These figures compare with an area of 2,021,900 acres, a yield of 26,130,000 bushels and a value of $23,608,000, in 1912. From these figures it will be noticed that the interest of the farmers in this grain, which had greatly sprung up in 1912, waned last year. The cause of this was disappointment as regards prices. Values were so high in 1911 that the farmers were induced to grow much more flax in 1912, but when the market declined rapidly they were not so keen in the matter in the following year. A great deal of the 1912 crop was badly damaged by weather conditions in the fall of that year and that also added to the discouragement.

The producers were well satisfied with the quality of flax in 1913, but the yield per acre was rather disappointing in many localities, and prices were complained of. The great bulk of the flax crop is grown in the provinces of Manitoba, Saskatchewan and Alberta. Estimates of the production in these provinces varied from about 11,000,000 bushels to about 15,000,000 bushels. The estimate of the Northwest Grain Dealers' Association, which is generally looked upon as conservative, was 11,723,600 bushels, on an area of 1,106,000 acres, making the average yield per acre 10.6 bushels. The actual inspections of flax in the crop year ending August 31, 1912, totalled 22,081,500 bushels, against only 7,190,000 bushels in the preceding crop year; so that although the yield was smaller in the three provinces in 1913 than in 1912, it was still considerably greater than in 1911. It is generally predicted that the Western farmers will continue to increase their flax acreage in the coming year.

In the first four months of the present crop year, from September 1 to December 31, the following were the inspections of flax past Winnipeg, as compared with the inspections in the preceding corresponding period:—

Flax.	1913, bushels.	1912, bushels.
1 N. W. C.	8,404,050	7,277,400
2 C. W.	343,350	1,069,050
3 C. W.	47,050	166,950
Rejected	34,650	13,650
No grade	57,750	298,200
Condemned	.....	8,640
Totals	8,946,850	8,773,890

Since the first of January the movement from the country has been very small and it is thought that there is not a great amount of flax now to come forward, although leading authorities are of the opinion that farmers are holding the balance of the grain for higher prices. The demand for Canadian flax has been good on the whole during the year, and, of course, values have been regulated according to the situation in the world's leading markets. The price of No. 1 Northwestern flax at the first of 1913 was $1.04½, and the price on the last day of the year was $1.22¼.

The amount of flax consumed by the mills of Western Canada is comparatively small, and no great interest attaches to the amount of oil cake and linseed oil produced here. There is ample market for the output of both. Oil cake is quoted almost invariably at $31 per ton. The demand for linseed oil in Western Canada is steadily growing, according as the country develops, and no doubt the crushing industry will grow. In the meantime the great bulk of the flax is exported. At the present time Winnipeg jobbers are quoting raw linseed oil at 65c. per gallon; boiled, 68c., these prices being for barrels. Strange as it may seem, these were the figures at the first of 1913 also, although there was considerable difference in the prices of the raw material.

BUENOS AIRES.

Trading in flaxseed in Buenos Aires was of increased volume during 1913. Argentina raised a record crop of flax in 1912, and the interest shown by traders at Buenos Aires corresponded with the increased production. With a fair 1912 yield in America, but which was not large enough to meet home requirements, attention was turned toward Argentina for supplies, and growers of this country met with a ready market for their flaxseed. The prices obtained, however, were lower, due to larger yield and the fact that storage facilities in this country are not adequate. Prices showed no sharp changes during the fore part of the year, but when the crop of 1913 was at an uncertain stage weather conditions were rather unfavorable at times and prices moved in a rapid manner, with advances and declines being sharp.

Exports of flaxseed during the year of 1913 totaled 42,246,000 bushels, which proved the largest amount ever exported by Argentina in recent years. These figures were more than double those of the preceeding year, Argentina exporting 20,751,000 bushels during 1912.

Because of the poor facilities for gathering information, the outcome of the 1913 crop was quite uncertain up to a late period. Losses have been suffered by the Argentine crop through unfavorable weather when the crop was not fully matured and rains during the time threshing was being done. While no official figures on the production of 1913 have been issued, conservative authorities are placing the crop at 75 per cent. of the preceding year, and the estimates on the exportable surplus range from 25,000,000 to 40,000,000 bushels. With a decreased production in America, and with a falling off in the yield of Argentina, growers in this country are likely to receive better prices for their seed than last year.

There was a better volume of business in the future market at Buenos Aires, although bearish conditions restricted trading during the early part of the year. Present conditions seem in favor of the bulls, and more interest is shown in future when the situation favors that side of the market. America will have to import larger quantities of flaxseed, and these people will be forced to come to this country for their supplies, which indicates that Argentina will find a ready outlet for her surplus.

Linseed Oil, Cake and Meal

NEW YORK LINSEED OIL MARKET.

An excellent demand for linseed oil was reported at the beginning of the year and numerous contracts were placed covering delivery over the spring months. The year opened with 42c. per gallon quoted for oil on spot and this price also applied to shipments to May. The tendency of prices through January was upwards and 42c. was quoted only a few days, giving way to 43c. A fair demand for oil continued throughout the month and at the close 46c. was the general market quotation for spot and spring shipments. Early in February spot oil was held at 47c. and demand became rather dull. However, interest in future positions was stimulated by offers under the spot quotation, shipments to May being quoted at 46c. and May-August at 46½c. During the first half of February the upward tendency of prices was unabated and near the middle of the month 49c. was the lowest figure quoted. This was the highest price quoted for oil in the first half of the year. Towards the close of the month prices were easier and the market closed a little below the prices asked at the beginning of the month. During this period oil values were strengthened by poor demand and low prices for oil cake. Another feature of the market was the presence of second hand offerings. The latter had been bought at 41@43c. and was resold at 46@47c.

With the coming of March an easier tone was imparted to the market. Crushers were carrying heavy stocks and business was rather quiet. Heavy stocks of seed at terminal points also helped to encourage selling pressure. Much uncertainty was felt regarding the very large seed stocks at the head of the Canadian lakes and the general aspect of the market was weak. At the begining of March 45c. was quoted for oil, but within a few days sellers were accepting 44c. and this price was then available for the balance of the month and some sales were made on a basis of 43c. A brisk trading movement featured the first ten days of April. The first two or three days oil sold at 42c. on spot and for spring delivery, but following advances in seed prices were put up to 43c. and at that figure many consumers covered their wants for considerable periods ahead. At the close of the month prices had risen to 47½c. During April the Department of Bridges of the City of New York opened bids for quantities of oil and the low bid was 44.95c. per gallon for raw and 45.95c. per gallon for boiled oil. During May prices were steady at 45@46c. Seed had been moving freely from Duluth and Canada since the opening of navigation and reports that a large part of the Canadian seed at those points was sold for export served to steady the oil market. Early in May seed arrivals at Buffalo were so large as to cause congestion at that point. Late in May reports about sowing for the new crop began to be circulated, but they were too indefinite to have any influence on the market. Trading was moderate

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during June and prices were subject to but little change, holding at 45c. until the last week of the month when 46c. was quoted. Both crushers and consumers of oil were waiting for reliable reports about the new crops and the stronger tone at the end of the month was due to reports that acreage would be curtailed in the United States and Canada. It was also apparent at this time that the large supply of Canadian seed at Duluth was destined for Europe. Trading in June was not only slowed up because of the uncertainty about the extent of the new flax crops, but also by a general depression in business as the result of attention given to proposed changes in the tariff schedule. A strong feature of the oil market in June was the fact that crushers were holding future positions at a premium over spot.

Unfavorable reports from the agricultural sections in July caused oil to be held firmly at 47c. and in the latter half of the month 48c. was asked, with sellers refusing to do better than 49c. at the close of the month. Resale oil was much in evidence in July and showed the speculative nature of some of the earlier buying. In August it was generally admitted that the crops on this continent would fall considerably short of those of 1912 and this, combined with a heavy decline in the stocks of seed in public store, had a decidedly strengthening effect upon prices for both oil and seed. Oil was offered at 49c. during the first ten days of the month, but then jumped to 52c., afterwards declining to 50c., at which price the month closed.

From September to the end of the year demand for oil was far from satisfactory to sellers. Consumers were looking for lower prices and were not placing contracts. September opened at 50c. and closed at 47c., and this downward course of prices was in accord with views of buyers who had predicted that prices would go lower as the close of inland navigation drew nearer. In this they were correct, for values eased off through October and the first part of November. At the latter time 45c. was quoted for delivery through March and April and trading assumed fairly large proportions for a few days, as many buyers were satisfied that prices were near rock bottom and others considered 45c. a low price at which to cover part of their requirements so that they would strike a fair average whichever way prices would turn. In the latter part of November the market was firmer, due principally to reports of damage to the Argentine crop and unfavorable conditions in India. At the close of the month 48c. was generally quoted. The market was steady through December at 48@49c. A disappointing feature of the market was the failure of buyers to accept deliveries of oil on contracts previously placed. All business lines were slow and this industrial depression had a marked effect upon the demand for oil.

A noteworthy development in the oil industry was the progress made in Europe in the use of linseed oil in soap making by the new hydrogenation process. To this is attributed the ability of Europe to absorb the record seed shipments of the year and it promises to be a factor in future markets, since by this process a new outlet is reported for from 150,000 tons to 200,000 tons of linseed oil. While domestic soap makers have not made use of linseed oil to any extent, yet the hydrogenation process indirectly affects domestic markets, since the parity between domestic and foreign markets has been lowered by the reduction of the import duty on linseed oil from 15c. per gallon to 10c. per gallon. Exports of oil from the United States were comparatively large during the first four months of the year, but this was largely on orders placed late in 1912, as demand fell off after January, owing to the arrival of large quantities of seed in the consuming markets of Europe. The prospects for 1914 are more favorable for importing oil than for exporting it, as formerly it was possible to take Canadian seed, work it up in this country and get a rebate of about 99 per cent. of the import duty on exporting the oil and cake, but under the new tariff there is no drawback on exports of cake made from imported seed.

The following table shows the prices at which car lots were quoted on spot in the New York market on each Saturday of the year together with comparisons:—

	1913.	1912.	1911.
January 4	$0.43	$0.74	$0.88
January 11	.44	.75	.91
January 18	.45	.75	.94
January 25	.46	.73	.94
February 1	.47	.72	.94
February 8	.48	.71	.94
February 15	.48	.70	.93
February 22	.47	.69	.95
March 1	.45	.68	.97
March 8	.44	.69	.94
March 15	.44	.69	.93
March 22	.44	.70	.91
March 29	.44	.71	.88
April 5	.44	.73	.87
April 12	.44	.73	.87
April 19	.45	.73	.89
April 26	.47½	.73	.88
May 3	.46	.73	.87
May 10	.45	.73	.87
May 17	.46	.74	.88
May 24	.45	.74	.87
May 31	.45	.76	.85
June 7	.45	.77	.85
June 14	.45	.77	.84
June 21	.45	.77	.83
June 28	.46	.77	.83
July 5	.47	.75	.83
July 12	.47	.70	.83
July 19	.48	.69	.82
July 26	.49	.68	.81
August 2	.49	.66	.80
August 9	.49	.65	.83
August 16	.52	.64	.85
August 23	.51	.64	.85
August 30	.50	.68	.87
September 6	.50	.66	.92
September 13	.50	.64	.92
September 20	.48	.64	.92
September 27	.47	.64	.80
October 4	.47	.64	.88
October 11	.47	.62	.83
October 18	.46	.58	.88
October 25	.46	.56	.85
November 1	.46	.54	.84
November 8	.46	.54	.80
November 15	.45	.52	.76
November 22	.46	.48	.75
November 29	.48	.45	.71
December 6	.48	.43	.69
December 13	.49	.42	.69
December 20	.48	.42	.71
December 27	.49	.42	.71

The following table gives the high and low price quoted for oil on spot in the New York market, together with comparisons:—

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	75	71	94	87	75	72	47	42
Feb.	75	74	95	94	72	62	49	45
March	80	75	94	91	71	68	45	43
April	82	80	88	87	73	73	48	42
May	82	80	88	87	76	73	46	44
June	80	76	85	83	77	76	46	44
July	88	77	83	80	77	67	49	46
Aug.	88	87	85	80	68	64	52	48
Sept.	99	88	92	87	66	64	50	47
Oct.	96	95	89	85	64	54	47	45
Nov.	95	94	84	73	54	45	48	45
Dec.	94	87	71	69	45	42	49	47
Year	99	71	95	69	77	42	..	..

The following figures show the export and import trade in linseed oil during the year:—

IMPORTS OF LINSEED OIL IN 1913.

	Gallons.	Value.
January	18,176	$11,524
February	11,519	6,695
March	16,424	9,597
April	3,737	1,733
May	12,589	7,453
June	7,699	4,353
July	8,159	4,965
August	11,608	6,462
September	12,254	6,799
October	8,158	4,462
November	40,434	16,520
December	11,003	5,997
Totals	161,760	$86,960

EXPORTS OF LINSEED OIL IN 1913.

	Gallons.	Value.
January	464,088	$222,426
February	471,022	227,656
March	300,819	147,779
April	135,586	69,219
May	58,827	28,758
June	27,634	14,686
July	47,108	23,568
August	17,835	10,188
September	18,201	10,774
October	15,768	9,173
November	22,607	13,198
December	11,206	6,234
Totals	1,590,701	$783,669

Production of flaxseed in 1913 reached large proportions, but fell short of the record figures for the previous year. The progress of the United States crop is shown by the following reports issued by the U. S. Crop Reporting Bureau:—

	Acreage.	Condition, per cent.	Yield per acre, bushels.	Total yield, bushels.
July 1	2,425,000	82	8.9	21,000,000
Aug. 1	2,425,000	77.4	8.3	20,000,000
Sept. 1	2,425,000	74.9	8.4	20,000,000
Oct. 1	2,425,000	74.7	8.7	21,000,000
Nov. 1	2,425,000	..	..	19,234,000
Dec. 1	2,291,000	..	7.8	17,853,000

The final estimate of the Canadian crop places total yield at 17,539,000 bushels. Hence the North American crop is more than sufficient to account for home needs and still leave a surplus for export. The Russian crop is variously estimated, but is generally believed to be about 22,000,000 bushels. Continued dry weather in India during the planting season is reported to have cut down flax acreage to a large extent. The Argentine is expected to harvest a crop of nearly 40,000,000 bushels, so that the visible supply for Europe for 1914 is second only to that of the past year.

IMPORTS OF FLAXSEED IN 1913.

	Bushels.	Value.
January	562,993	$783,416
February	229,578	256,075
March	378,458	436,461
April	72,298	81,124
May	715,236	823,271
June	292,002	344,750
July	224,159	258,396
August	189,402	218,291
September	303,486	351,367
October	880,166	1,087,983
November	1,182,896	1,381,211
December	1,549,579	1,816,985
Totals	6,580,244	$7,844,330

EXPORTS OF FLAXSEED IN 1913.

	Bushels.	Value.
January	.....	.....
February	88	$254
March	532	835
April	215	629
May	42	128
June	12	35
July	44,851	62,174
August	128,042	180,442
September	109,253	152,961
October	14	42
November	42	123
December	19	56
Totals	283,110	$397,679

MINNEAPOLIS LINSEED OIL.

The market was of the draggy sort most of the year. Dealers and mixers had considerable high priced stuff, bought at the turn of the year, and were unable to find a broad or active demand for products. As the old crop oil was taken slowly, a natural congested condition of affairs followed, and it was not until the market got very low did any buying of deferred of the new crop begin. During the greater part of the fall the general trade offerings were conservative, and the competition between crushers brought prices down to the cost level and even lower. Around the first of the year the inquiry broadened out a bit, but actual business failed to improve to speak of. After inventories were taken though, the retail trade of the Northwest began to buy freely, and in consequence the jobbing trade took care of considerable of the output and ordered stuff out on old contracts very promptly. The big buyers felt their way along most of the time, and showed no disposition to load up or to anticipate needs, preferring to let the crushers bear the burden of carrying their oil until they actually needed it.

LINSEED OIL CAKE AND MEAL.

The market was sluggish and narrow after the spring rush was over, and crushers were barely able to get rid of their output during the summer and early fall months. Later there was general improvement in the Northwestern demand and the market was brisk and strong, with prices going up steadily. The feature of the year was the big improvement in the Northwestern demand. Crushers have for years tried to build up a trade for meal in nearby territory, but failed to do so until this year, when the failure of the corn crop and the necessity of paying high prices for feeding grains in general induced some of the farmers and feeders to give meal a trial. That it was a very satisfactory substitute for the usual provender is proven by the rapidly broadening Northwestern market, sales in that direction and to the Southwest breaking all records. Iowa took a lot of meal during the fall and there was considerable of a demand from the Southwest. Most of the mills were oversold at the end of the year and found it hard to keep up with shipping directions on old contracts.

The poor European situation and the congested condition there, with unfavorable financial conditions, made the demand poor for cake, especially during the fall. The bearish news from Argentina was also a factor, but owing to the fact that there was a big demand for oil mean, sufficient to take care of the accumulation of offal in good shape, the crushers were indifferent toward the foreign trade and refused to entertain bids. In fact, most of the offal from the 1913 crop press was taken care of by the meal trade at prices that were $2 to $4 higher than values represented in the foreign bids. At the end of the year there was no interest in the foreign situation, as far as the outlook for offal was concerned, and crushers were chiefly interested in knowing how they were to keep abreast of the demand for oil meal, let alone stimulating a cake market.

CHICAGO LINSEED OIL AND CAKE.

There was a greater amount of business done in linseed oil at Chicago during 1913, but the prices obtained by crushers were considerably below those ruling during the preceding year. The increased production of flaxseed in 1912, both in the United States and Canada, as well as Argentna, enabled crushers to secure seed at lower prices, and they were in turn forced to dispose of their output at reduced figures.

Prices at the beginning of the year, when the large flax yields of 1912 were commencing to be felt, were around the lowest levels reached in several years, and brought forth a steady demand from users of linseed oil. The buying at no particular time, however, was strong enough to force any sharp advance in values, prices being held within the narrowest range of late years, 41@52c. per gallon. During 1913 the crushing of flax at Chicago was greater than for several preceeding years, as is evidenced by the larger amount of seed absorbed by the mills in operation at this point. The number of mills now crushing flaxseed at Chicago is small, but in the face of these they produced more linseed oil for local and outside use than for several preceding years. The total capacity of these mills is placed at approximately 4,000,000 bushels and, while there were dull periods in which little work in the crushing line was done, the statistics obtained show that there were close to 3,500,000 bushels of seed received by crushers at Chicago.

The weather prevailing during the greater part of the year was ideal for painting operations, which also proved a factor in the enlargement of the linseed oil trade at Chicago. Crushers made attempts to advance prices at various times during the year, but the buying side generally refused to follow the market in its upward climb when they deemed existing conditions failed to warrant the higher prices and holders were invariably forced to reduce values to a more reasonable trading basis. Difficulties arising among one of the painter's unions and the building trades organization resulted in a strike during the summer months, but differences were adjusted after several weeks and work held back was again resumed. The delay in this case was not serious and had only momentary effect on linseed oil prices. Exports of linseed oil from America, while not large, were greater than of late years, with most of it going to the West Indies.

LONDON LINSEED OIL AND CAKE.

Minneapolis.

Having regard to extremely large supplies of linseed the fluctuation in value was surprisingly small, but the heavy demand for linseed of all descriptions prevented any drastic shipping away. The average price of the seed during each month was as follows:—

	Calcutta seed.	La Plata seed.
	s. d.	s. d.
January	46 10½	43 4½
February	*50 1½	45 4½
March	46 0	42 9
April	46 3	43 0
May	46 1½	42 9
June	47 7½	40 10½
July	45 6	43 3
August	47 7½	46 3
September	46 7½	44 7½
October	45 2½	41 6
November	43 7	40 4½
December	46 3	43 6

* Rose on reports of shortage of rain in India.

Variation in seed-value had a more or less corresponding effect on oil prices. The absence of stocks in consumers brands at the beginning of year and in the early months stiffened the market for spot oil. With the advent of plentiful supplies, stocks became replenished and the position was less firm with occasional recoveries reflecting the course of seed. Towards the end bad crop reports from most of the producing districts caused the price of oil to advance and there was a good speculative demand for forward business. Hopes have been engendered of a considerable increase in the demand through the new hardening process. The movements in the market for the oil may be indicated in general by the following quotations for prices on spot landed in London taken about the close of the first week in each month, corresponding figures for 1912 being added for comparison:—

LINSEED OIL, SPOT PIPES.

	1913. £	s.	d.	1912. £	s.	d.
January	25	0	0	41	0	0
February	27	5	0	38	15	0
March	24	10	0	37	0	0
April	23	5	0	38	5	0
May	23	5	0	39	15	0
June	24	0	0	44	10	0
July	25	0	0	41	10	0
August	25	15	0	33	10	0
September	25	0	0	33	5	0
October	23	10	0	33	5	0
November	22	0	0	30	5	0
December	23	15	0	26	5	0
Close	25	2	6	25	0	0

Linseed cake has been in downward tendency, owing to the larger quantity of seed crushed. The following are the quotations for London-made at about the end of the first week in each month, 1912 being again added for comparison:—

LONDON-MADE LINSEED CAKE.

	1913 £	s.	d.	£	s.	d.	1912 £	s.	d.	£	s.	d.
Jan.	8	5	0	@8	7	6	9	17	6			
Feb.	8	2	6	@8	5	0	10	7	6	@10	10	0
March	8	0	0	@8	2	6	10	15	0	@10	17	6
April	7	15	0	@7	17	6	10	12	6	@10	15	0
May	7	12	6	@7	15	0	10	0	0	@10	2	6
June	7	12	6	@7	15	0	9	0	0	@ 9	2	6
July	7	10	0	@7	12	6	9	0	0	@ 9	5	0
Aug.	7	12	6	@7	15	0	9	0	0	@ 9	5	0
Sept.	7	15	0	@7	17	6	9	0	0	@ 9	5	0
Oct.	7	15	0	@7	17	6	9	0	0	@ 9	5	0
Nov.	7	12	6	@7	15	0	8	17	6	@ 9	0	0
Dec.	7	10	0	@7	15	0	8	10	0			
Close	7	10	0	@7	15	0	8	5	0	@ 8	7	6

Cottonseed Oil, Cake and Meal

NEW YORK COTTONSEED OIL MARKET.

Prices of cottonseed oil have varied materially during the past year and developments were of a character to attract interest not only from buyers in the domestic market, but from factors interested in many of the important vegetable oil markets throughout Europe. At the outset, consuming demand was exceedingly dull and spot oil prices in January were confined to the range of from 6½c. to 6¼c. a pound. Crude oil in the Southeast opened the year at 38c. a gallon, declined to 37c. during the first week in January and advanced to 38½c. at the close. Mills offered very sparingly, while buyers were satisfied to limit operations to actual wants.

Early in February, Rotterdam purchased 5,000 barrels of butter oil and this had a tonic effect on refined values, the market advancing to $6.30, where it remained comparatively steady during the remainder of the month. Crude oil during February sold as low as 38½c. in the Southeast and as high as 40c. a gallon, but the close of the month, there were offerings in Texas at 37½c. No particular change in values materialized during the first two weeks in March, although during the latter half of the month, spot refined oil advanced to 6½c. a pound, owing to an upward movement in the pure lard market Crude oil also worked higher in the Southeast, advancing from a 38c. plane to a basis of 41c.

Consuming demand improved during April and May and prices mounted slowly to 7¼c. for refined oil on spot. Large refiners felt the force of improved consuming inquiry and bought crude oil freely in all parts of the

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country advancing the market to 45c. in every section. At this time, it was stated that Texas held 150,000 barrels of crude oil, but it was apparent that supplies in other parts of the country were near the exhaustion point. Crushers anxious to take advantage of the relatively high prices for crude oil scoured the South for seed offerings but were unable to secure any sizable quantities regardless of the fact that they bid $27 a ton for immediate delivery. Early tenders of refined oil in May amounted to 16,000 barrels but the oil was readily absorbed and the advancing tendency of the spot market continued unchecked. It is of interest to note that early in May, the first sales of new crop crude oil were reported in the Southeast at 42c. a gallon. Under the stimulus of advancing spot prices, a heavy speculative demand developed for the option, and buying, which at this time was considered wild, kept the options in a buoyant condition. There was no departure from the upward tendency during the month of June and refiners and professional shorts who had been "bearing" the market bought heavily to cover their wants. Meanwhile crude oil had advanced to 47c. a gallon for immediate shipment.

The month of July found bullish enthusiasm unlimited. A pronounced scarcity of oil all over the country greatly facilitated the upward movement and by the end of the month, 95½c. had been paid for refined spot oil, while 55c. a gallon was paid for crude oil. It was now apparent that one of the most spectacular advances ever recorded in cottonseed oil had taken place. The movement was paralleled only once in trade annals and that was late in the summer of 1910 when supplies were exhausted and a prominent refiner bid 12c. for spot refined oil a pound without securing any stock. Once inaugurated the buying movement was augmented from various consuming sources. The oleo margarine makers called for their usual allotments, sardine packers asked for their 30,000 barrels and the compound lard trade called for an unusual quantity of both hardened and liquid cotton oil. The combined drain was so great and stock dwindled so rapidly, that refiners did not have time to buy back their contracts before the avalanche of speculative operations had propelled prices higher than was conceivable at the outset of the year.

Realizing the situation too late, the big interests started an aggressive buying movement. Speculators who held most of the summer contracts bought more. Pyramids were formed, and operators secured themselves with stop-loss orders. The pendulum had swung upward slowly at first, then violently, and the momentum exceeded the most optimistic ideas of the rampant bulls. The ominous shadows cast by early crude oil quotations materialized and even future crude touched the highest altitude ever recorded. Sales were reported for immediate shipments at 55c. a gallon in the Southeast, while in far off Texas, 61c. was paid for August shipment. The only prices worthy of comparison with these were registered in 1893 when a large refiner sold 3,000 barrels of crude oil at 55c.

With shelves cleared, tanks dry and an oil famine in sight refiners continued to buy. Not only did they confine operations to the domestic market, but the tanks of American and English holders abroad were tapped and the flow turned towards this country. All through July and August, heavy importations from the Continent, continued to arrive. English oil prices at this time, felt the sting of American buying and English speculative shorts were thrown into a panic in their efforts to even accounts. Practically all of the off oil supplies in this country were purchased and processed up to meet the specifications of prime and no effort was spared to secure every barrel of available oil for sale. It was obvious that with stocks so well drained, there would be many holes to fill up at the beginning of the new crop season. The output for the year ending August 31, was placed at 3,500,000 barrels, including a previous carry over estimated to be 300,000 barrels. All of this oil had been consumed mostly at home and for edible requirements.

The opening of the new season in September, occasioned a gradual easing off in values. From 95½c. a pound for spot oil in August, the market declined to 81½c. during the first week of September and to 71¼c. at the close Crude oil broke from 61c. during the last week in August to 44½c. at the end of September. The violent decline in prices naturally prompted conservatism on the part of buyers and demand did not appear urgent after the stringent conditions were once relieved. A moderate export business was placed in October, but the buying was not sufficient to hold values and toward the close of the month, spot oil sold at $6.09. Meanwhile crude oil had eased off to 42c. a gallon and the seed market was quoted $23 to $27 per ton, according to location. Heavy damake to the cotton crop in Texas during this month resulted in a very low grade of seed offerings, and the early crush of crude oil was so poor that the refining loss in some extreme instances reached 40 per cent. The refining loss was also high in the Mississippi Valley, but in the Southeast, was about normal or on an average basis of 10 per cent.

During November price variations were limited and the spot market fluctuated between 7c. and 7.15c. Crude oil advanced to 45½c. owing to the strength in the seed market, which moved up to $30 per ton in the Southeast. An easier feeling developed in December, owing to a declining lard market and the independence of consumers. Offerings of crude oil became freer, and the high prices paid for seed stimulated shipments to the mills to no small degree. Crude oil prices dropped from 45½c. a gallon to 40½c. a gallon, which price prevailed at the close of the year. There was also a corresponding decline in refined oil, spot price selling off from 7.15c. to 6.70c.

For comparative purposes, the appended table will show the high and low prices of spot refined oil and immediate shipments of prime crude oil during the last four years. Prices are based on closing quotations each successive week:—

PRIME SUMMER YELLOW ON SPOT.

	1913.		1912.		1911.		1910.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan...	6¼	6¼	5.50	5.30	7⅜	7¼	7⅜	7.20
Feb...	6.30	6.25	5⅝	5½	7.15	6¾	7⅜	6.95
Mar...	6.50	6.30	5⅝	5½	6¾	6¼	7¼	7⅜
April..	7¼	6⅜	7	5⅞	6⅜	6¼	7⅞	7⅜
May..	7¼	6⅞	7½	7	6½	6¼	8¼	7⅞
June..	8⅜	7¼	6⅞	6⅜	6½	6¼	8½	7¾
July..	9⅝	8½	6⅜	6.40	6¾	5½	10	8
Aug...	9⅝	8½	6.50	6.23	6¾	5½	12	9¼
Sept..	8½	7½	6.50	6.19	7½	6.30	11	8½
Oct...	7.20	6.90	6.50	5.75	6.45	5.85	8⅝	7½
Nov...	7.15	7.00	6.20	5.75	5⅞	5¼	7¾	7½
Dec...	7.05	6.70	6¼	6¼	5.38	5.30	7½	6⅞
Year..	9⅜	6¼	7.50	5.30	7½	5.30	12	6¼

PRIME CRUDE OIL FOR IMMEDIATE SHIPMENT.

	1913.		1912.		1911.		1910.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan...	38½	37	33½	31½	46½	45	49⅜	45
Feb...	40	38¼	35	33½	44	41½	48	44½
Mar...	41	38½	35	33½	42	39	50	47½
April..	45	41	42	38	40	37¼	53	51
May..	45½	42½	48	44	43	38	55	52
June..	47	45½	44	42½	41	38	55	54
July..	55	50	43	39	39	30	Nominal	
Aug...	61	55	40	39	36	40	Nominal	
Sept..	51	44	38	36	40	32½	61	50
Oct...	44½	42	36¼	35½	33½	31½	51	45½
Nov...	45½	45	40	36½	33½	32	47	45
Dec...	42½	40½	41¼	38	31	30½	48	44
Year..	61	37	48	31½	46½	30	61	44

AUSTRO-HUNGARIAN COTTONSEED OIL TRADE

The year 1913 has also gone by among much intercourse of views and many hopes, but the eighth year of proscription did not modify anything and cottenseed oil continues to be banned from our market owing to the prohibitive duty imposed upon it by the Austro-Hungarian Government in March 1906.

For this reason, the purchases of cottonseed oil are made by our merchants only for transit-business, but unfortunately also this is rapidly decreasing as the countries which were formerly drawing their supplies from the Trieste market, where large supplies of the most well-known makes were always available, find now more convenience by buying directly from the country of origin. It is, therefore, safe to say that the importation of cottonseed oil at Trieste, that reached formerly 100,000 barrels a year, has now entirely ceased owing to a prohibitive duty of 40 kronen per 100 kilos gross, equal to about 20 francs net.

It is notorious that our merchants have asked so far in vain the abatement of the duty to a rate of 15 kronen as utmost; but it is wise to consider that this rate of 15 kronen gross, that is about 20 francs net, would permit the importation of cottonseed oil into Austria-Hungary only during the years when this oil is offered at low prices, since also with an entrance duty of 20 francs net, its importation would not have been possible, or only on a slight scale during a year like that just gone by. This is proven by the fact that edible American corn oil was quoted at figures about the same as cottonseed oil and although the former pays about 20 francs of entrance duty, only a shade more of 1,000 barrels have been imported. No doubt this is an unseemly figure in view of the magnitude of this market. This is explained by the notion that sesame oils made in this country were costing from 90 kronen to 95 kronen during 1913, or say 100 francs, while no American oil, neither cottonseed nor corn, could have ever been bought at 80 francs in Triesto during the above period named.

The above proves amply that a rate of 15 kronen would not open the doors to the American cottonseed oil as it is asserted by the few crushers of Austria-Hungary, but would hardly leave a small gap through which a few thousand barrels of this excellent oil could pass during the more favorable years, which oil was not only appreciated by our oil-merchants, but also preferred by the consumers. Nowadays both merchants and consumers are only getting sight of it when it crosses our free-harbor—bound for foreign countries, as one could never emphasize enough that the statistics show many thousands barrels of cottonseed oil and corn oil shipped to Austria-Hungray from the United States which, however, are only in transit to Italian ports of the Adriatic and to the Levant.

ROTTERDAM COTTONSEED OIL MARKET.

Trading in cottonsed oil so far as Holland is concerned, has not been as lively and important as in former years owing to the relatively high level of prices as compared with other raw material for the Butterine industry, such as arachide oil, deodorized linseed oil, hardened whale oil, etc.

The high cotton oil prices were mainly caused by an increased use of the hardened article for compound lard, which now consists of about 90 per cent. of hardened cotton oil, the poor olive crop and the high seed prices in the U. S. A. As for the Rotterdam market, prices for old crop gradually rose from 38@38½ florins (at the beginning of 1913) to 45@46 florins in April and May; when in June and July the anxiety and excitement reached the top. American even repurchased butter oil in our market at 49@50 florins for new crop oil at first 39@39½ florins was paid and the tendency remaining firm prices ran up to 41 florins; at this latter figure neither buyers nor sellers wished to increase their engagements, both preferring to await the further development of the crop. Then came the dry, hot summer, causing considerable injury to the cotton crop (especially so in Texas, Oklahoma and Missouri) while the heavy rains which followed in September and October also were detrimental to the crop and the quality of seed. All this caused the tendency to grow very firm; for the first shipments of new crop oil prices up to 46@47 florins were paid, while more distant months advanced to 44@45 florins.

During the last weeks of December, however, there was a gradual weakening of the tendency caused by larger crop-estimates, a less favorable economical outlook and a weaker lard market, so that prices for choice butter oil again declined to 43 florins.

LONDON COTTONSEED OIL AND CAKE MARKET.

A large increase in supplies of the seed was overset by very moderate carry-over stocks into 1913 in Egypt and until August price of seed consistently moved upwards. Average prices of the seed by months were:—

	Egyptian cottonseed.			Bombay cottonseed.		
	£	s.	d.	£	s.	d.
January	8	13	9	6	19	0
February	8	18	6	7	1	6
March	8	16	6	6	16	6
April	8	19	6	6	15	0
May	9	2	0	6	15	0
June	9	0	0	6	15	0
July	9	11	6	6	19	6
August	9	18	0	7	1	9
September	9	4	0	7	0	6
October	8	14	6	6	17	6
November	9	0	0	6	17	6
December	8	17	6	6	15	0

Cotton oil was largely under the influence of a good United States demand for soap oil, brought about by the brisk call on American made oils for the compounded lard trade which was very active. Top price was scored at the end of July and the beginning of August, after there was a fairly gradual recession. The following table shows the prices ruling at about the end of the first week in each month:—

COTTONSEED OIL.

	Crude.			Refined ordinary pale.		
	£	s.	d.	£	s.	d.
January	25	0	0	26	10	0
February	27	10	0	28	0	0
March	27	5	0	28	0	0
April	28	0	0	28	15	0
May	29	0	0	29	5	0
June	28	5	0	28	10	0
July	32	10	0	33	10	0
August	35	0	0	36	0	0
September	33	0	0	34	10	0
October	29	10	0	31	0	0
November	30	0	0	31	0	0
December	30	15	0	31	0	0
Close	29	10	0	30	0	0

Value of London-made cottonseed cake did not cover a wide range, as the following list of quotations at about the end of the first week in each month shows; 1912 is added for comparison:—

COTTONSEED CAKE (LONDON-MADE).

	1913				1912			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Jan...	5	15	0				5	17	6@6		0	0
Feb...	5	15	0@5	17	6		5	10	0@5	17	6	
Mar...	5	17	6@6	0	0		5	15	0@5	16	3	
April..	5	16	3@5	17	6		5	15	0@5	17	6	
May...	5	16	3@5	17	6		5	13	9@5	15	0	
June..	5	17	6@6	0	0		5	17	6@6	0	0	
July...	5	17	6@6	0	0		5	17	6@6	0	0	
Aug...	5	15	0@5	16	3		5	17	6@6	0	0	
Sept...	5	17	6@6	0	0		6	2	6@6	5	0	
Oct....	5	12	6@5	15	0		6	2	6@6	5	0	
Dec....	5	6	3@5	7	6		5	12	6			
Close..	5	6	3@5	7	6		5	15	0			
Nov...	5	10	0@5	12	6		5	17	6@6	0	0	

Other Vegetable Oils

Cocoanut Oil.

The trend of prices for cocoanut oil was steadily upward during 1913. The year opened with Ceylon oil quoted on the basis of 9⅜c. per pound, but as consumers thought this figure high no business of any consequence was placed. Offerings were light and with copra scarce prices commenced to climb until in July 11¼c. per pound was actually paid for spot oil in the New York market. This price ruled through to August, when speculators offered futures at concessions and prices eased off until Ceylon oil on the spot was quoted at 10½c. during November and December. Many authorities looked for a material increase in the output of copra, but this did not come to pass and all early calculations were upset. Some large factors abroad were badly caught in the advancing market and the year was one of much activity from the traders' point of view. As a matter of fact the production of copra was about the same as in 1912, but as that year was short and consumption increased materially the demand was more than equal to the supply.

The copra market being almost entirely controlled by speculators was at times altogether out of line with oil quotations. During the year a large oil mill was put into operation in the Philippines and this company was able to put oil on the market on a lower basis than Ceylon. This concern sold practically its entire output to American consumers and made its shipments direct. The introduction of Philippine oil was one of the chief factors in bringing out lower prices for Ceylon stock.

Shipments of copra in 1913 amounted to 413,611 tons, as against 445,034 tons in 1912. The falling off in shipments is accounted for by the fact that almost all of the amount which makes up the difference was manufactured in the Philippines.

Consumption by manufacturers of edible products abroad figured largely during the past year, and the soap trade also took hold freely. Towards the close of the year some very large 1914 contracts were placed by American soap manufacturers.

Cochin oil sold for 10½c. during January, and as Ceylon advanced this grade was also marked up. Offerings from primary centers were very light early in the year and the result was that little business was booked for American account. Supplies of this stock were almost exhausted in the summer, and in August spot prime East India Cochin oil sold as high as 14c. per pound, the high record for the year. In September prices eased off a shade and oil was on the market at 13½c.; this figure held until the end of November, when under more liberal receipts sellers were offering supplies at 12½c. At the close of the year 12½c. per pound was the nominal quotation.

Imports of cocoanut oil into the United States for the past three years were:—

	Pounds.	Value.
1913.....	72,195,622	$6,257,848
1912.....	46,719,748	3,864,650
1911.....	48,494,351	3,925,641

The following tables gives the high and low price, for each month, from January, 1910, to December, 1913, on Ceylon cocoanut oil, the figures being based on the closing spot quotation of each successive week:— ¼

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.....	9½	9¼	9½	9¼	9¼	9⅛	9⅜	9¼
Feb.....	9¼	8.90	9¼	9	9½	8½	10¼	10
March....	9¼	9	8	8	9	8⅝	10¼	10
April....	9⅜	9⅝	8	7.70	9	8⅜	10½	10¼
May.....	9⅝	9¼	8½	8¼	9	8⅜	10	10
June.....	9⅜	9¼	8⅜	8½	8	8⅜	11	10¼
July.....	9¼	8⅞	9¼	9½	8⅜	8½	11¼	10¾
Aug.....	9½	9¼	..	..	9¼	8½	11¼	11
Sept.....	10¼	9⅜	..	..	9¼	9	11¼	11
Oct.....	10	9⅜	12	12	9⅜	9¼	10⅜	10⅝
Nov.....	9⅝	9¼	11¼	11	9⅜	9¼	10⅝	10½
Dec.....	9½	9¼	9¼	8¾	9¾	9⅜	10⅝	10¼
Year.....	10¼	8⅞	12	7.70	9¾	8⅜	11¼	9¼

The following table gives the high and low London quotation for Ceylon cocoanut oil, for nearby shipment, c. i. f. New York, during 1913, by months:—

LONDON PRICES FOR CEYLON OIL, 1912.

	High			Low		
	£	s.	d.	£	s.	d.
January	41	15	0	40	0	0
February	41	12	6	42	10	0
March	43	12	6	42	15	0
April	44	15	0	43	12	6
May	43	10	0	42	10	0
June	45	12	6	43	2	6
July	46	10	0	45	10	0
August	48	5	0	47	2	6
September	48	0	0	47	15	0
October	48	0	0	47	2	6
November	47	15	0	47	5	0
December	47	5	0	47	0	0
Year	47	0	0	46	15	0

In the annual report issued by Bigland, Sons & Jeffreys, Liverpool, the cocoanut oil situation is reviewed as follows:—

In spite of the great activity produced by the very high prices current for the past two years the hoped-for increase in supplies has not eventuated, and the decline in prices which we foreshadowed in our last outlook did not come to pass. The greatest shortage in copra was in the Philippines, and was partly accounted for by the fact that crushing mills have been built there and the oil consumed partly in their own market and considerable quantities shipped to the United States. The shortage from Manila amounts to 62,000 tons.

The consumption of this article is now of world-wide interest, as the value of the oil as a food product is increasingly recognized. A few years ago the greater percentage of the shipments came to Northern Europe, but we now find that Spain, Portugal, the United States, Russia and other countries are competing for a permanent supply, and at a discount under present values there seems to be a willingness to enter into contracts for very distant shipments. During the past year those merchants who have made long-distant contracts have experienced the greatest difficulty in finding the quantities sold. This has kept the market in a highly nervous state, as frequently large quantities had to be secured on very short notice.

The outlook for the coming year is most obscure, and traders will require to use the greatest caution.

It is, we think, reasonable to expect an increase of supply will be general.

The only factor which might make for a general decline is the possibility of hardened

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Balsam Peru	Insect Flowers, powdered	Paris Green
Insect Flowers, open	Insect Stems, powdered	Spikenard Root
Juniper Berries	Corigliano Licorice	Sanitary Fluid
Cocoa Butter	Gum Asafetida	Cardamom Seed, decorticated
Cake Meal	Gum Guaiac, strained	Caraway Seed
Camphor, Monobromated	Gum Mastic	Mogodor Foenugreek Seed
Catechu	Alexandria Senna, half leaf, garbled	Parsley Seed
Domestic Sunflower Seed	Powd. Carbonate of Magnesia	Celery Seed

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liquid oils being used, to some extent, to replace the present consumption of copra and kernel oil in soap and margarine. Efforts are being made in this direction, but it is too early yet to make any forecast as to the displacement that may ensue, and it seems probable that for the first six months of the year there will not be sufficient machinery available to affect the market.

The supply of palm kernels from Africa has also been disappointing, and the figure given below show, for the first time in seven years, a cessation in the annual increase which we have been enjoying.

The advanced prices of palm kernels and copra would naturally have led us to look for greatly increased supplies (as instanced in rubber), but, so far, indolence of native labor and time to establish estate production has not kept pace with the increased demand, so that consumers will continue to study scientific process possible, to enable them to substitute lower-priced oils for these commodities, and, while we anticipate a gradual weakening in value, we are not sufficiently sanguine to encourage our friends to expect any considerable decline.

ESTIMATE OF COPRA SHIPMENTS, 1913.

	Tons.
Malabar	37,000
Java	79,000
Macassar	39,000
Sangir, Menado, etc.	27,000
Padang	18,000
Straits	90,000
Ceylon	57,000
Manila	75,000
South Sea	70,000
Total	483,000

Nots.—This is about 34,000 tons less than shipments for 1912.

Corn Oil.

The feature in the corn oil situation was the opening of a new channel of consumption for this product. This not only brought out high prices for the year, but assured a steady future outlet for the oil. Prices were the lowest in January, when leading interests were asking $5.55 per 100-pounds. At this time things looked rather unfavorable, as linseed oil was very cheap and other competing oils were also available at comparatively low prices. Business was very quiet, with soap and paint manufacturers showing little interest. Low prices ruled up to June, when refiners entered the market. This high position of cotton oil forced manufacturers of lard-compound and cooking oil to look around for other materials and corn oil was found to be very well suited for this purpose. These edible products found a good market both abroad and in this country. An authority estimates that fully 80 per cent. of the entire output of corn oil, which amounts to about 200,000 barrels a year, now enters into consumption in the edible field.

By July corn oil sold quite freely at $6.05@6.50 per 100-pounds, and the price went steadily upwards until it touched $6.80 in December, the high point for the year. It is probable that the future course of the market will be governed entirely by the price of cotton oil. The production of corn oil varies but little, as the grind of corn has been about the same for the past few years.

	Pounds.	Value.
1913	17,788,647	$1,219,362
1912	22,870,356	1,427,979
1911	28,652,198	1,864,364

The following table gives the high and low price of corn oil, by months, during 1913:—

	H.	L.		H.	L.
January	5.65	5.55	August	6.65	6.50
February	5.80	5.55	September	6.50	6.50
March	5.65	5.50	October	6.50	6.25
April	5.80	5.80	November	6.60	6.35
May	5.80	5.60	December	6.80	6.55
June	5.80	5.70	Year	6.80	5.55
July	6.50	6.05			

Olive Oil.

The shortage in the 1912-13 crop of olives brought out high prices for oil and had a tendency to curtail business in the local trade. Buyers entered the market for current wants only and business appeared quiet throughout the year. The year opened with supplies of denatured oil scarce and prices ranged from 88 to 92c. per gallon, as to quality. These prices ruled during February and March. Business was very quiet in April and competition brought out cheaper oil, with sellers at 85@87c. per gallon. In the summer months prices varied but little ranging from 83c. to 85c. per gallon. During the fall the outlook for new crop oil was very good and prospective buyers held off for lower prices. This caused prices to hold around 83c. up to the close of the year.

Spain was the chief source of supply and the war in the Balkans upset the situation abroad considerably.

Demand for prime green foots was fair in 1913 and light offerings sustained prices. The year opened with foots quoted 7¾@8c. per pound, and during a period of extreme quiet in the summer oil sold for 7½c. At the close the price was firm at 7¾@8c. per pound. Off grade oil was offered at concessions amounting to as much at ½c. per pound.

Imports of olive oil, fit only for manufacture, for the past three years, follow:—

	Gallons.	Value.
1913	563,869	$368,814
1912	759,237	469,444
1911	483,829	331,720

The subjoined table gives the high and low prices for each month from January 1, 1910, to December 31, 1913, with the average price for each year on commercial yellow olive oil, the figures being based on the closing quotations of each successive week:—

	1910. H.	1910. L.	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	72	65	95	90	85	75	92	88
Feb.	80	80	93	92	85	75	92	88
March	80	80	95	90	82	73	92	88
April	80	80	90	88	72	70	90	87
May	80	78	87	86	70	68	87	85
June	78	78	87	85	70	68	85	85
July	70	80	85	75	72	70	85	85
Aug.	85	85	80	80	76	70	85	83
Sept.	90	85	87	85	84	80	86	83
Oct.	90	90	85	80	90	85	83	82
Nov.	90	90	85	80	92	88	83	83
Dec.	90	90	85	90	92	88	93	93
Year	90	70	85	80	92	68	92	82

Palm Oil.

The past year was one of high prices for all descriptions of palm oil due to moderate offerings abroad, where, owing to the light crop, holders were very firm in their views. Business taken as a whole was good and imports into the United States show an increase over the previous year. During the greater part of the year business here seemed quiet, but this was due to the fact that most of the large consuming interests made heavy purchases direct instead of through local dealers.

Lagos opened the year at 7c. per pound and on light offerings advanced to 7½c. by March. Business was slow in the spring and the market eased off somewhat until May-June, when the ruling spot price was around 7c. In July prices strengthened following the report that quarantine had been declared on the port of Lagos. During August and September prices were firm around 7¾c. per pound. In October offerings were larger and sellers were asking from 7½c. to 7⅝c., and these prices held up to the close.

Red prime opened the year at 6½c. and in sympathy with Lagos advanced until August, when the high point for the year was reached, which was 7¼c. per pound. Prices eased off in the fall and the market closed the year with the tone easy at 6⅝c.

Imports of palm oil into the United States for the past three years follow:—

	Pounds.	Value.
1913	54,071,864	$3,631,134
1912	52,770,579	3,443,069
1911	45,748,406	3,238,166

The following table gives the high and low for Lagos palm oil in the New York market during 1913:—

	L.	H.		L.	H.
January	7	7¼	July	7	7½
February	7¼	7½	August	7½	7¾
March	7½	7½	September	7¾	7¾
April	7¼	7½	October	7⅝	7¾
May	7	7¼	November	7⅝	7⅝
June	7	7¼	December	7½	7⅝

An authority in Liverpool reviews the palm oil situation as follows:—

Here again the activities on the West Coast of Africa have not been sufficient to produce exports equal to those of any of the previous five years, and consequently we experienced a rather higher range of values than what we anticipated.

Palm oil is another of the articles that will be affected by the increased use of hardened fats in soap and candle making, but so far as we can gauge the situation the demand for the soap making qualities of palm oil, viz., Lagos, Bonny and Old Calabar, will be ample to absorb the possible imports of these grades, and if we are right in our forecast that linseed oil will advance considerably it is quite possible that the anticipated reduction of demand will not eventuate, and we do not anticipate a decline any time during the coming year below £29 10s. per ton, Liverpool terms, Bonny-Old Calabar.

The demand from America is likely to be lessened during the first four months of the year, owing to the enormous production of mucilage from cottonseed oil, the oil from which is being recovered and used in the manufacture of soap as a substitute for palm oil.

STATISTICS OF PALM OIL FOR LIVERPOOL.

	1913. Tons.	1912. Tons.	1911. Tons.
Stock Dec. 31	3,261	5,000	2,000
Imports	72,146	16,373	73,202
Deliveries	73,894	74,160	71,577

Palm Kernel Oil.

With cocoanut oil high in price, demand for palm kernel oil was fairly active. Consumption of this stock showed a heavy increase abroad, which made supplies for America scarce during the greater part of the year. As palm kernel oil is now extensively used in the manufacture of edible products abroad, the soap trade experienced difficulty in obtaining supplies at attractive prices.

Prices touched new high records in the local market, as 11c. per pound was paid for spot oil. The year opened with the oil selling around 8⅞@9¼c. per pound. Prices advanced steadily and in April and May 10@10¼c. were the ruling quotations. In August spot stocks were almost nil and for a time nothing was available under 11c. per pound. As cocoanut oil became more plentiful and cheaper in price the market eased off somewhat and in October and November spot oil was offered at 10½@10⅝c. per pound. December was quiet for lack of offerings and at the close of the year 10½c. was the normal quotation.

Imports of palm kernels into Germany in 1913 amounted to 272,036 tons, as against 295,508 tons in 1912, 280,429 tons in 1911, and 256,668 tons in 1910. Imports of palm kernels into Liverpool in 1913 are estimated at 36,012 tons, against 27,725 tons in 1912, and 20,799 tons in 1911.

Importations of palm kernel oil into the United States for the past two years were:—

	Pounds.	Value.
1913	27,745,780	$2,445,449
1912	27,681,291	2,138,821

The following table gives the high and low spot quotations, by months, during 1913:—

	High.	Low.
January	9¼	8⅝
February	9½	9⅜
March	9½	9⅜
April	10¾	9¾
May	10	10
June	10¼	10
July	10¾	10¼
August	11	10⅝
September	10¾	10½
October	10⅝	10½
November	10½	10⅜
December	10½	10½
Year	11	8⅝

Rapeseed Oil.

A reduction in the duty amounting to 4c. per gallon was the feature in the rapeseed oil market in 1913. Business done showed an increase over the previous years, as this oil is now used more extensively, especially by manufacturers of lubricating oils. The imports in 1913 amounted to 1,443,908 gallons, against 1,368,864 gallons in 1912.

With the crop of seed better than expected prices were a shade easier than during the preceding year. The lowering of the tariff, however, brought out the only sharp decline. The year opened with refined rapeseed oil quoted at 68@69c. per gallon, and this basis was maintained through to June, when sellers were asking 67c. In August and September a good business was done for oil in bond at 63c. per gallon. In October sellers reduced the spot quotation to 62@63c. as the tariff went into effect. The market held at 62@63c. up to the close of the year.

Imports of rapeseed oil into the United States during the past two years, according to official statistics, follow:—

	Gallons.	Value.
1913	1,443,908	$711,546
1912	1,368,864	697,772

Soya Bean Oil.

The scarcity of soya beans and the very low market for linseed oil brought business in soya oil almost to a standstill in 1913. The paint industry could not be interested at prevailing prices and the high market for the beans did not permit of any price cutting to meet competition with cheaper oils. The imports in 1913 show a heavy decline compared with the preceding year.

With the paint trade out of the question soapmakers were induced to take hold of some stock, but this business did not continue as expected. In several instances holders of soya bean oil were forced to dispose of their supplies at liberal concessions. A good part of the oil imported was in cases and this stuff sold from 5¾c. to 6c. per pound. For regualr barreled oil the price ranged from 6¼c. to 6½c. per pound. In February the low point of 5⅝c. was established, and in June and July sellers were asking 6½c., the high figure for the year. There was quite a heavy carry over of oil into 1914.

Imports of soya bean oil into the United States for the past two years were:—

	Pounds.	Value.
1913	14,221,277	$692,957
1912	24,958,865	1,361,294

Following are the high and low prices for soya bean oil in the New York market during the past three years:—

	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
January	7⅛	7	7	6½	6¼	5¾
February	7⅜	7⅛	6	6⅛	6	6⅛
March	7⅝	7⅜	7	6⅞	5⅞	5⅞
April	7	6⅞	7	6¼	5⅞	5⅞
May	7¼	6⅝	7	6⅛	6	5⅞
June	6¼	6¼	6½	6½	6¼	6
July	7	6¼	6½	6⅜	6½	6⅜
August	6⅝	6¼	6½	6⅜	6½	6⅜
September	6⅝	6⅜	6⅝	6⅜	6½	6⅜
October	7¾	7½	6½	6⅜	6⅝	6⅜
November	7	7	6⅝	6¼	6⅝	6⅜
December	6⅞	6⅝	6¾	5½	6⅝	6⅜
Year	7⅝	6¼	7	5½	6½	5⅞

China Wood Oil.

Conflicting reports were heard about demand for China wood oil. Measured by the amount of oil brought into this country consuming demand must have been large. Uncertainty about the stocks carried over, however, make it impossible to determine consumption through the import figures. According to some sellers demand for China wood oil began to decline in the fall of 1912 when linseed oil prices began to reach low levels, and as linseed oil held a comparatively low level through 1913 it was stated that demand for wood oil was greatly curtailed thereby, and these reports account for the large imports by saying that unsold stocks at the close of the year were very large. Leading sellers do not agree with the version of the wood oil market. Some assert that their sales were larger than ever before and they also claimed to have only normal supplies on hand at the close of the year. It would appear as though the low prices quoted for linseed oil have some effect in keeping down demand for wood oil, but consumption of the latter was larger inspite of this. It was only in those cases where wood oil was used as a substitute for linseed oil that demand fell off last year. In those lines in which wood oil holds a preeminent position consumption showed expansion.

Some low-priced wood oil was on the market in March, when a lot of more than 1,000 barrels were auctioned off, the selling price being reported at 4⅝@5c. per pound. This oil had been saved from the wreck of the Dacre Castle. In April a lot of about 4,000 barrels was burned at Hankow. This oil was awaiting shipment to New York.

SPOT PRICES FOR CHINA WOOD OIL.

	1913.	1912.
January	7¼@8	11 @14
February	7 @8	11 @14
March	7 @8	10 @13
April	7⅞@7½	10¼@13
May	6⅞@7½	10 @11½
June	7 @7½	9 @10½
July	7¼@7½	8⅝@10
August	7 @7½	8 @ 9¼
September	7 @7⅞	8 @ 9½
October	7 @7⅞	8¼@ 9½
November	7¼@7⅞	8⅝@ 8⅞
December	6⅞@7¼	7⅞@ 8

Imports of China wood oil, in gallons, into the United States, by months, for the calendar year compare as follows:—

	1913.	1912.
January	344,960	255,554
February	561,828	103,858
March	290,612	283,751
April	364,982	351,881
May	314,504	457,595
June	374,620	504,245
July	674,764	448,255
August	517,221	622,039
September	308,257	595,235
October	731,126	1,291,266
November	553,557	379,250
December	652,747	402,015
Totals	5,678,278	6,704,944

CHICAGO CORN OIL.

Trading in corn oil was quite satisfactory during the year of 1913. The demand for this oil was of an urgent character during the entire period, the dull times being decidedly few and of short duration. Users were in the market at all times with good requests for stock, although the demand towards the closing of the year was more active than during the earlier months. The production of corn oil was of fair proportions and the prices obtained showed an imporvement over those ruling in 1912. Inquiries were for all sized lots and the supply was never allowed to show a material increase because of the liberal orders on hand at all times. Distributors of corn oil experienced considerable difficulty in securing enough oil to meet requirements of the trade during the closing months of the year. These people solicited very little business and were frequently forced to turn down orders where prompt delivery was required because of exhausted supplies. Users continued in the market despite the high prices asked, showing a preference for corn oil over other vegetable oils at all times. The bulk of the inquiry, especially during late months, was for tank lots, which closed the year at $5.90 per 100 pounds.

SOYA BEANS AND OIL IN THE UNITED KINGDOM.

Once again smaller importations of soya beans into the United Kingdom have to be recorded, the aggregate decline being considerable. Below are the receipts at the various centers and it will be noticed that in some quarters the trade has quite dropped off; the figures for the four previous years are added for comparison:—

To—	1913. quarters.	1912. *quarters.	1911. quarters.
Hull	292,600	661,350	657,800
Liverpool	32,500	79,580	163,750
British Channel	28,400	47,750	90,700
Scotland	....	15,250	39,600
London	....	37,900	34,650
Miscellaneous	....	16,350	37,700
Totals	353,500	849,180	991,200

To—	1910. quarters.	1909. quarters.
Hull	1,082,500	904,998
Liverpool	285,150	346,487
British Channel	214,700	253,035
Scotland	124,850	121,604
London	206,100	183,636
Miscellaneous	57,700	33,500
Totals	1,891,000	†1,928,910

* About 480 pounds to the quarter.

†Including 85,659 quarters landed at Rochester, which port is not separately given in the 1910-13 figures.

Of the imports only a small proportion has been used by crushers, the major part having been extracted. The price of beans has ruled high and crushers have found precious little profit in the trade, while the demand for cake has been poor through the entire year. Thus additional emphasis is given to our remarks in last year's review. That the soya bean crushing industry which promised so much on initiation a year or two ago has become a sorry affair.

The course of the bean market can be indicated by taking quotations towards the end of the first week in each month for Harbin parcels spot Hull, the three previous years being added for contrast:—

	1913. £ s. d.	1912. £ s. d.	1911. £ s. d.	1910. £ s. d.
Jan.	8 7 6	8 17 6	8 0 0	8 2 6
Feb.	8 12 6	8 17 6	8 0 0	7 15 0
March.	8 8 9	8 2 6	7 6 3	7 10 0
April.	8 5 0	7 15 0	7 1 3	7 13 0
May.	8 5 0	8 12 6	7 2 6	7 10 0
June.	8 5 0	8 12 6	7 1 3	6 13 9
July.	8 5 0	8 12 6	7 5 0	6 17 6
Aug.	8 15 0	8 12 6	7 13 9	8 0 0
Sept.	9 1 3	9 0 0	8 5 0	8 2 6
Oct.	8 17 6	9 1 3	8 0 0	8 2 6
Nov.	8 10 0	9 0 0	8 17 6	7 15 0
Dec.	8 7 6	8 15 0	8 10 0	7 15 0
Close.	8 7 6	8 8 9	8 17 6	7 18 9

The prospects for 1914 are not very satisfactory, the indications pointing to a crop about the same as last year.

The soya oil market has lost much of its former interest and has become considerably restricted in volume. During 1913 with linseed so plentiful and linseed cake selling at cheap prices demand for soya-cakes has been small and there has been little encouragement to crush, consequently soya oil

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has been comparatively scarce and above its intrinsic value. Londonmake has been quite nominal in quotation during the major part of the year, but in the earlier months was called £26 to £27 in barrels on spot. Hull prices for extracted have varied as follows, taking quotations ruling at about the end of the first week in each month:—

	£	s.	d.		£	s.	d.
January	23	5	0	August	27	15	0
February	25	0	0	September	26	10	0
March	24	0	0	October	26	10	0
April	23	12	6	November	26	2	6
May	25	0	0	December	26	10	0
June	25	10	0	Close	27	0	0
July	27	0	0				

Animal and Fish Oils

The most important development in the cod oil situation was the change in the tariff. After a long fight between the domestic and foreign interests this article was finally put on the free list, which meant a reduction in duty of 8c. per gallon. The output of prime oil was short of the previous season, and it was estimated by authorities that the Newfoundland yield was fully 7,500 barrels less than in 1912.

Competition had a tendency to depress prices, and the low position of substitutes also brought pressure on the market. Prices, taken as a whole, were much lower than in the preceding season due chiefly to the cut in the tariff. Leading importers report that the year was successful from a financial point of view.

The year opened with Newfoundland oil quoted at 45c. per gallon. The market held at this figure through to March, when dull business brought out cheaper offerings. By the end of March Newfoundland stock was offered freely around 42c. and this was the ruling quotation up to the first of June. During June and July oil was sold in considerable quantities subject to new tariff rates. In August business was placed on the basis of 39c. and 31c. per gallon (in bond). Little flurries featured the market from time to time as reports came to hand of a shortage in the yield. In September sellers were asking from 35c. to 37c. for bonded stock.

October was the month when the new tariff became effective, and prices were immediately adjusted to meet the new conditions. During October and November prices ranged from 32c. to 36c. per gallon, and in December holders were asking nearer the outside figure. Domestic oil was on the market at all times from 1c. to 2c. under Newfoundland. Dealers had much trouble competing with adulterated oil, which was very common at times.

The following table shos the high and low price of Newfoundland cod oil for each month during 1912 and 1913:

	1912		1913	
	H.	L.	H.	L.
January	57	56	45	45
February	57	56	45	45
March	57	56	45	42
April	57	56	42	42
May	55	53	42	42
June	54	53	40	40
July	52	49	40	40
August	48	41	40	39
September	42	40	42	40
October	43	42	42	40
November	43	42	43	40
December	44	43	40	39

Lard Oil.

Prices for lard oil moved within a narrow range, due chiefly to the steady market for raw material. At no time was the buying movement active, and consumers seemed satisfied to enter only as their needs called for. The prices realized were comparatively high and substitutes were used more freely. Export demand was light and very little of this business was booked in New York.

The demand was mostly for off prime. Off prime sold all the way from 66c. to 72c. per gallon, with the average quotation the year round at about 68c. Strictly prime lard oil was offered at 88c. in January, and this price ruled to the close of February, when prices firmed up in sympathy with the strength in lard. In April sellers were holding prime oil at 95c. and this figure prevailed up to October. In November sellers were asking from 92c. to 95c. per gallon, and by December the price again moved up to 94@95c. Much so-called prime oil was on the market at all times at a considerable discount from the basis openly quoted.

Trading on the ordinary grades was routine at all times and no important changes were reported. No. 1 and No. 2 stock was held around 51c. to 54c. per gallon, as to grade and seller. Supplies on hand were rather light, owing to the high cost of manufacture and the uncertain position of the various raw materials.

The following table shows the high and low prices for prime lard oil in the New York market for each month since January, 1909, and also the high and low prices touched in each year:—

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan..	78	73	1.28	1.20	1.05	95	88	75	95	90
Feb..	78	73	1.28	1.20	1.18	1.05	85	75	90	88
Mar..	80	75	1.28	1.10	1.05	95	83	80	95	90
April.	81	79	1.28	1.20	1.05	95	88	80	95	90
May..	83	80	1.20	1.20	90	80	88	85	97	94
June.	88	85	1.15	1.00	85	75	88	85	96	94
July..	90	88	1.00	1.00	75	72	90	85	97	95
Aug..	95	88	1.00	95	75	72	90	86	97	95
Sept..	96	95	1.02	95	80	80	91	86	95	95
Oct...	1.05	98	1.02	1.02	85	82	95	86	95	95
Nov..	1.10	1.05	1.05	95	85	80	98	88	95	95
Dec..	1.28	1.10	1.28	95	83	75	98	94	95	93
Year.	1.28	73	1.28	95	1.18	75	98	75	95	94

Menhaden Oil.

With the total production of menhaden oil fully 50,000 barrels short compared with 1912, prices realized were high. In some sections the season was almost a complete failure. The best figures available place the total output of menhaden oil at 95,000 barrels, as against 140,000 barrels the previous season. As no official information is at hand it is possible that the total for 1913 may be a little higher than now estimated. Most of the fishing was done in the Chesapeake Bay district late in the season. The fishing was so poor in some localities that several factories went into liquidation.

The short output caused prices to hold at high levels, which to some extent made up for the decrease so far as the financial end of the business was concerned. The quality of the fish was good for oil making but poor for scrap.

Early in the year several of the leading factories closed good sized contracts around 24c. per gallon, but during the season practically nothing was sold for less than 25½c. In January Northern oil was held at 24c., with the Southern at 23c. The market advanced steadily until at the close of the year Northern was quoted at 37c. and the Southern at 33c. per gallon. During August and September, when prices as a rule are at the lowest point, Northern crude sold for 30@35c., and the Southern for 28@32½c. per gallon.

There was a fair demand for the oil, both for export and domestic manufacture, and at times practically nothing was offering pending the outcome of the season. Like most other oils, new uses were found for menhaden oil, and a feature was the buying by soapmakers who were able to use it to advantage by means of the hydrogenation process.

The following table shows the highest and lowest prices of light and brown strained menhaden oil in the New York market each month since January, 1909, and also the highest and lowest prices touched each year, the figures being based on the closing quotation each successive week:—

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan....	35	34	33	31	59	57	46	42	33	32
Feb....	33	33	35	31	59	57	45	40	33	32
March..	34	33	36	35	59	57	40	42	34	32
April...	34	33	36	36	59	56	42	37	34	32
May....	34	33	37	36	56	52	40	37	33	32
June....	34	33	38	37	56	48	38	36	32	30
July....	34	33	38	38	48	46	35	33	32	31
Aug....	34	33	38	38	49	45	32	31	34	31
Sept....	33	32	42	38	49	46	31	31	37	35
Oct.....	31	29	45	42	49	46	33	32	38	37
Nov....	31	29	52	48	49	46	33	32	39	39
Dec....	31	31	55	52	49	46	33	33	39	39
Year...	35	29	55	31	49	46	46	31	39	31

The high and low prices of crude Northern and Southern menhaden oil by months for the year were:—

	Northern		Southern	
	High.	Low.	High.	Low.
January	25	24	24	23
February	28	25	26½	24
March	28	26½	25½	25
April	28	28	26½	25½
May	28	27	26½	25½
June	28	27	26½	25½
July	29	27	25½	25½
August	30	29	28	25½
September	35	32	32½	30½
October	35	35	33	32½
November	37	37	33	33
December	37	37	33	33

Neatsfoot Oil.

The whole year went by with practically no change in the neatsfoot oil situation. The high market for raw materials caused prices to hold firm around 96c. per gallon for the 20-degree cold test. Buyers were cautious and only took hold so as to cover against actual requirements. The production was normal. Export demand was quiet and it is the opinion of authorities that substitute articles are finding their way into this field. Dealers were not disposed to carry large stocks, being in hope that prices would eventually decline, but this never came about. Twenty-degree cold test opened firm at 98c. per gallon, and closed the year with sellers asking from 96c. to 98c. Other grades were offered at the usual discount.

Red Oil.

Like in most other descriptions of animal oils prices were high, being governed by the cost of the raw materials. High prices ruled at the opening of the year and when the season of dullness set in during the summer the market went off only a trifle. Business picked up in the fall and at the close prices gained some of the earlier loss. Elaine was quoted at 6⅜c. in January, with the saponified at 7⅛c. In July, August and September elaine sold for 5¾c., with the saponified at 6¼c. At the close in December elaine held at 6c., with the saponified at 6½c. per pound. Taken as a whole business was good and fully up to the average.

Sperm and Whale Oils.

The production of sperm oil was somewhat larger than in 1912 and competition brought out easier prices for the crude. Early in the year crude sperm oil sold on the bulk basis of 54c. per gallon, while during the summer 48c. was the nominal quotation. Most of the season's output sold at the low figure. Importations at New Bedford for 1913 amounted to 19,090 barrels, against 17,495 barrels in 1912 and 31,915 barrels in 1911.

Jobbing business was fair and prices for refined sperm oil ranged from 67c. to 72c. per gallon, as to quantity and quality. The market for refined was steady throughout the year and prices realized were from 2c. to 4c. per gallon lower than in 1912.

There was a good demand for whale oil in the West, but lack of offerings restricted business in the East. Dealers predict a heavy increase in the demand for whale oil from the soapkettle, and to meet this business factories are being built on an extensive scale in many foreign lands. It is estimated that during 1913 the yield of whale oil for the world was 800,000 casks, a heavy increase over 1912. The use of whale oil by soap manufacturers was made possible by the hydrogenation process. An English authority on oils reviews the situation as follows:—

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A year ago we laid stress upon the great increase in the production of this article during the previous five years, and we still have to report a continuance of this activity in its production during the past twelve months. The demand, however, is so rapidly increasing, and the hardened fat produced from it so admirably adapted for soapmaking that the quantity available during the coming twelve months will be quite insufficient to keep the various plants now ready, and those that are being equipped, fully supplied.

Imports of Sperm Oil During 1913.

Importations of sperm oil, showing the date of arrival, and the amount brought by each vessel:—

Date.	Barrels.
April 28, Hyanthes	150
May 25, Richard W. Clark	4,150
June 1, Bark Alice Knowles	650
June 29, Brig Daisy	375
July 14, Schr. Ellen A. Swift	450
August 8, Schr. A. W. Nicholson	550
August 9, Bark Charles W. Morgan	1,200
August 15, Schr. John R. Mantas	200
September 4, Bark Gay Head	900
October 25, Schr. E. R. Smith	4,555
November 13, Schr. Richard W. Clark	4,425
November 13, Str. Berlin	1,485
Total	19,090

NOTE.—On December 31 the stocks of unsold sperm oil in New Bedford amounted to 1,100 barrels.

Stearic Acid.

There was a good consuming demand for stearic acid in spite of rather high prices. The high market for raw materials had a strong influence on the market, especially for the higher grades. The No. 1 or double pressed sold from 10½c. to 10¾c. per pound. No. 2 or single pressed sold from 8½c. to 9¼c. per pound, and during the summer months good-sized contracts were placed on the basis of 8¾c. Special grades sold all the way from 11c. to 12½c. per pound.

Tallow Oil.

The market opened firm on the basis of 65c. per gallon for the acidless. Prices eased off from that point and during the summer leading sellers were asking 63c. The weakness was caused by the quiet which usually prevails in the summer. Business picked up in the fall and with tallow trending upward prices advanced steadily until December, when the market again was back to the 65c. basis. The demand was moderate at all times, yet the total volume of business reported was up to normal.

CHICAGO LARD OIL.

Supplies of lard oil on the market were about equal to the demand during the greater part of the year and prices showed no sharp changes in consequence. Strength or weakness in other oils, however, had some effect on prices at various times, but it was only momentary and the market invariably settled back and was governed by the supply and demand for this special oil. Trading on export account was of a tame character, foreigners using substitutes as a rule. Packers and jobbers of lard oil were generally possessed of only moderate quantities, the demand being large enough to keep stocks from showing marked accumulations at all times. The failure of prices to show marked changes instilled faith in the buyers and they were not forced to lay in large supplies because of the slight changes made in values.

CHICAGO NEATSFOOT OIL.

Trading in neatsfoot oil showed no material change during 1913. Business was again of moderate volume and prices moved within a narrow range during the entire period. Buyers were in the market at all times during the year, but their requests were at no times for amounts large enough to cause any material advance in values. On the other hand, packers showed no disposition to curtail the demand at any time during the period by asking excessively high prices, being content to accept prices warranted by conditions existing in the market for neatsfoot, as well as other animal oils. Much of the oil disposed of was absorbed by domestic interests, only a small quantity being taken by foreigners. The latter people were in the market at occasional periods and bought only such amounts as were needed to meet their immediate requirements, refusing to lay in liberal supplies because of the steadiness shown by prices.

Lard, Tallow, Stearines, Greases

NEW YORK MARKETS.

Lard.

Trading in the local lard market has not been much of a factor during the past year, and large orders have been executed chiefly through the primary market at Chicago. The local range for city lard prices was from 9½c. a pound to 11¾c. The minimum figure was recorded in January and the maximum in July. The close was at 10½c. A full review of developments in the year's primary market is chronicled on another page of this issue.

Tallow.

The movement of tallow through consuming channels has been normal during the year under review and the local market has not been subjected to any drastic price changes. Margarine soap, candles and various other industries have absorbed the output with comparatively little difficulty and the inroads made by hardened oils did not appear to materially lessen consumption. The lowest prices were recorded during the warm weather period, while the highest quotations were registered late in the year. The spirited advance in cottonseed oil in the summer had no appreciable effect and the market in general was not susceptible to outside influence. Demand and supply were merely divided and no unusual local features developed. Special tallow was the popular brand in the local trade and the bulk of business was confined to this quality. The following table shows the lowest regular price each month during the past five years for fair grade "country," and the highest for soapmakers' finest sorts, all in barrels or tierces, the latter in prime shipping order and sold at an f. o. b. rate.

	1913.		1912.		1911.		1910.		1909.	
	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.
Jan.....	6⅝	7⅛	6¾	7	7⅜	8¼	6½	7⅛	6	7
Feb.....	7	7⅜	6	6⅞	7⅛	7⅜	6¾	7⅛	6	6⅞
March...	7	7⅜	6	7	6¼	7	7	7⅜	5⅜	6⅜
April....	7⅛	7⅜	6⅛	6½	6¼	6⅝	7⅜	8	5½	6¼
May.....	7⅛	7⅜	6¼	7½	6	6⅞	7	7⅜	5⅝	6½
June.....	6⅜	7⅜	6½	7½	5¾	6⅜	6⅜	7⅜	5½	6½
July.....	6½	7⅜	6	7¼	5¾	6⅜	6⅜	7⅜	5½	6½
Aug.....	6½	7⅜	6¼	7½	5⅞	7¼	7½	8¼	5⅜	6½
Sept.....	6¾	7⅜	6¼	7¾	6¾	7¾	7⅝	8½	5⅞	6⅞
Oct.....	6⅞	7⅜	6¼	8	6⅜	7½	7½	8½	6¼	7⅛
Nov.....	7⅛	7⅞	6¼	7⅞	6¾	7½	7½	8⅜	6⅜	7¼
Dec.....	7	7⅞	6¼	7½	6⅜	6⅞	7⅜	8	6¼	7½
Year.....	6½	7⅞	6	8	5⅜	8¼	6½	8⅝	5⅜	7½

Oleo Stearine.

Prices of oleo stearine have varied sharply during the past year and the market has shown no departure from its usual wildcat attitude. The market opened in January at 10c. per pound, touched 8½c. in June and October and 11c. in March, April and July. The close was quiet at 9¼c. Scattered holdings of this material and the urgent desire of compound makers, leather factories and the consumers to cover necessities at intervals was the chief reason attributed for the market's irregularity. Prices have always been known to work in either direction very easily when pressure is applied. This last month of the year was probably more tame than the market has experienced in some time. This was accountable by the fact that the government appeared to favor the free importation of foreign oleo stearine, provided it was placed in drums or hard wood containers and not in bags.

Greases.

Animal greases have found a steady outlet to the soap, lubricating oil, confectionery and various other consuming industries. Distributors had to compete with other hardened oils to sell their product and this kept the market on a slow but persistent downward trend during the first half of the year. Many varieties of grease were offered and prices depended entirely on the quality and quantity desired. House, brown, white and yellow grades opened the year at 5¼@7¼c., the minimum figure representing brown greases and the maximum the better sorts of white. In May the minimum figure was reduced to 5c. and in June to 4¼c., the maximum depreciating accordingly. No further change was recorded during the last six months.

CHICAGO MARKETS.

Lard.

Speculation played a small part in the lard market at Chciago in 1913, a year when operations in all lines holding speculative possibilities were of a subdued character.

The cash trade in lard, however, was tremendous and both shipments to domestic consuming centers and sales for export to foreign shores made a substantial gain over those of the preceding year:—

	1913. Pounds.	1912. Pounds.
Domestic shipments	273,717,000	252,176,000
Increase, 1913	21,540,900	.....
Exports	521,000,000	516,000,000
Increase, 1913	5,000,000	.....

Production at Chicago was greater than in 1912 and the enlarged requirements of the cash demand were met in spite of a decrease in contributions

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from outside packers. Total receipts for the year were 58,399,000 pounds, against 61,228,000 pounds in 1912, a decrease of 2,829,000 pounds.

Hog receipts for the year were 7,570,938 head, against 7,180,967 head in 1912. Of this number Chicago packers slaughtered 5,897,788 head in 1913, against 5,608,315 head in 1912, an increase of 289,473 hogs. The average weight of the animals for the entire year was 228 pounds, against 226 pounds in 1912, contributing further to the increase in lard production.

Stocks of prime steam lard at Chicago at the opening of the year were of seasonable though moderate proportions and prices were comparatively low. Reserves continued light until after the first of June. In the latter month there was a big accumulation of supplies and this continued until September, when stocks began to decrease.

At their maximum holdings of lard here were 125,134 tierces, the smallest maximum holdings of any year since 1910. From the first of September on stocks began to decrease, but the work of depletion did not progress as rapidly as had been expected and the year closed with 71,532 tierces of contract lard in store, the largest year end holdings ever known in the trade.

STOCK OF CONTRACT LARD IN CHICAGO.

The following table shows the stocks of "contract" lard on hand in Chicago on the first of each month in the years named:—

	1913. Tcs.	1912. Tcs.	1911. Tcs.	1910. Tcs.	1909. Tcs.	1908. Tcs.
Jan..	17,325	49,857	17,793	9,257	15,945	6,258
Feb..	18,981	82,795	9,252	12,968	44,390	27,916
Mar..	16,062	104,959	15,274	7,954	49,404	36,526
April	12,534	107,189	33,776	11,680	62,701	55,394
May..	13,304	118,059	44,949	8,845	66,911	59,328
June.	33,905	120,437	59,780	16,742	60,837	103,046
July..	84,781	166,476	113,813	24,833	95,705	147,483
Aug..	120,424	194,083	148,444	37,822	70,248	162,019
Sept..	125,134	163,857	117,747	31,404	35,344	142,344
Oct...	110,157	91,156	70,750	17,113	26,593	83,469
Nov..	64,780	42,702	48,325	30,104	9,501	46,336
Dec..	48,923	17,341	46,015	22,685	4,912	32,725

WORLD'S LARD STOCKS.

The following table shows total stocks of lard at the principal markets of the world on January 1, 1913, with comparisons:—

	Jan. 1, 1914.	Dec. 1, 1913.	Jan. 1, 1913.	Jan. 1, 1912.
Liverpool and Manchester	17,500	17,000	10,000	15,500
Other British ports	22,000	20,000	16,000	17,000
Hamburg	12,000	10,000	5,000	14,000
Bremen	1,500	2,000	1,000	2,500
Berlin	8,000	4,000	1,000	3,500
Baltic ports.....	12,000	10,000	7,500	15,000
Amsterdam, Rotterdam, Mannheim	1,500	1,000	500	2,500
Antwerp	1,000	1,000	2,000	3,000
French ports.....	4,000	6,000	4,500	2,000
Mediterranean pts.	500	500	500	1,500
Total stocks.....	80,000	71,500	48,000	76,500
Afloat for Europe.	45,000	40,000	55,000	55,000
Total tierces....	125,000	111,500	103,000	131,500
Chicago, contract.	71,532	48,523	21,455	49,857
Chic'o, other kinds	18,556	15,905	9,057	16,338
East St. Louis....	150	78	*500	1,000
Kansas City.....	6,905	7,018	7,120	9,133
Omaha	4,408	6,892	4,859	3,029
Milwaukee	5,979	*5,000	1,323	9,403
South St. Joseph..	7,384	7,799	5,962	6,459
Total tierces....	241,914	202,415	153,253	226,719

* Estimated.

Irregularities in prices were occasioned late in the year because of the big stocks remaining unsold, but taken altogether, the movement of cash lard prices during 1913 was smooth and regular. In fact, the entire spread from the lowest to the highest price was the narrowest recorded since 1905.

Lard was cheapest in January. In that month sales were made down to $9.47½ per hundred pounds. From that level there was an almost steady advance, until in July prices reached their zenith for the year, $11.87½ per hundred pounds.

At its lowest price for 1913 lard was 82½c. a hundred pounds higher than at the low point in 1912. At its highest it remained 10c. a hundred cheaper than at the high time in the foregoining year.

CASH PRICES FOR TWO YEARS.

The following table exhibits the opening, highest, lowest and closing cash prices on the regular market of lard in store (monthly) for 1913, with highest and lowest prices for 1912:—

	1913 Open.	High.	Low.	Close.	1912 High.	Low.
Jan..	9.55	10.30	9.47½	10.02½	9.45	9.05
Feb..	10.12½	10.72½	10.12½	10.72½	9.15	8.65
Mar..	10.72½	11.25	10.40	11.15	9.80	8.90
April	11.15	11.27½	10.65	10.92½	11.00	9.72½
May..	10.97½	11.25	10.87½	11.25	10.90	10.37½
June	11.15	11.15	10.97½	11.07½	10.92½	10.62½
July..	11.15	11.87½	11.15	11.45	10.80	10.32½
Aug..	11.57½	11.57½	10.90	11.20	11.20	10.40
Sept..	11.05	11.35	10.95	10.95	11.22½	10.82½
Oct...	10.97½	10.97½	10.30	10.52½	11.97½	10.70
Nov..	10.57½	10.97½	10.47½	10.72½	11.45	10.65
Dec..	10.75	10.75	10.52½	10.65	11.10	9.67½

PRICES OF LARD FOR 48 YEARS.

The following table shows the lowest and highest cash prices for prime steamed lard in the Chicago market for the last forty-eight years and the months in which extreme prices were reached:—

Year.	Months the lowest prices were reached.	Yearly range.	Months the highest prices were reached.
1866	December	$11.25 @23.00	May
1867	Jan. & July..	11.25 @13.75	August
1868	January	11.75 @19.50	May&Sept.
1869	Oct. & Nov..	16.25 @20.75	February
1870	December	11.00 @17.25	January
1871	Nov. & Dec..	8.37½@15.00	February
1872	December	7.00 @11.00	July
1873	November ...	6.50 @ 9.37½	April
1874	January	8.20 @15.50	October
1875	November ...	11.80 @15.75	April&May
1876	September ...	9.55 @13.85	Mar.&April
1877	December	7.55 @11.55	January
1878	December	5.32½@ 7.80	August
1879	August	5.30 @ 7.75	December
1880	June	6.35 @ 7.85	November
1881	February	9.20 @13.00	July
1882	March	10.05 @13.00	October
1883	October	7.15 @12.10	May
1884	December	6.45 @10.00	February
1885	October	5.82½@ 7.10	Feb.&April
1886	May	5.82½@ 7.50	September
1887	June & Oct...	6.20 @ 7.92½	December
1888	January	7.25 @11.20	October
1889	December	5.75 @ 7.55	January
1890	December	5.50 @ 6.52½	April
1891	February	5.47½@ 7.05	September
1892	January	6.05 @10.00	December
1893	August	6.00 @13.20	March
1894	March	6.45 @ 9.05	September
1895	December	5.15 @ 7.17½	March
1896	July	3.05 @ 5.85	January
1897	June	3.42½@ 4.90	September
1898	Jan. & Oct...	4.62½@ 6.82½	May
1899	May & June.	4.00 @ 5.77½	January
1900	February	5.65 @ 7.40	October
1901	January	6.90 @10.25	September
1902	February	9.07½@11.60	September
1903	October	6.20 @11.00	September
1904	May	6.15 @ 7.92½	February
1905	January	6.55 @ 8.10	August
1906	January	7.32½@ 9.85	November
1907	November ...	7.50 @ 9.97½	February
1908	February	6.97½@10.45	October
1909	January	9.40 @13.90	November
1910	November ...	9.70 @14.65	March
1911	April	7.70 @10.67½	January
1912	February	8.65 @11.97½	October
1913	January	9.47½@11.87½	July.

Packers and investors took an active interest in the speculative market, but as a general rule, trades were made considerably ahead of the expiration of delivery months and there were no suggestions of squeezes or corners. Extreme caution in entering into contracts was exercised and no spectacular raids were attempted.

Interest centered largely in the May delivery, which opened the year at $9.70 and sold up to $11.30 for the first quarter, then reopened in August at $10.75 and finished the calendar year at $11.05.

RANGE OF MAY LARD PRICES.

Following table shows the lowest and highest monthly prices paid in the Chicago market for lard for May delivery during the past six seasons:—

	1913-14.	1912-13.	1911-12.	1910-11.	1909-10.
June.	{ ..	..	..	..	..
	{ ..	..	..	..	..
July..	{ ..	..	..	..	..
	{ ..	..	..	..	..
Aug..	{ 10.75	..	8.80	..	..
	{ 10.92½	..	9.12½	..	..
Sept..	{ 10.35	10.02½	8.72½	10.02½	10.50
	{ 11.45	10.62½	9.50	10.60	..
Oct...	{ 10.40	10.12½	8.82½	9.62½	10.47½
	{ 11.17½	10.75	9.32½	10.35	11.30
Nov..	{ 10.70	10.10	9.10	9.40	11.07½
	{ 11.27½	10.37½	9.47½	9.97½	11.87½
Dec..	{ 10.87½	9.70	9.10	9.32½	11.37½
	{ 11.20	10.27½	9.52½	10.45	12.17½
Jan..	{ ..	9.70	9.30	9.70	11.30
	{ ..	10.40	9.67½	10.40	12.35
Feb..	{ ..	10.15	8.92½	9.07½	11.87½
	{ ..	10.85	9.45	9.90	13.30
Mar..	{ ..	10.47½	9.25	8.25	13.20
	{ ..	11.22½	9.95	9.30	14.25
April.	{ ..	10.65	9.70	7.75	11.80
	{ ..	11.20	11.20	8.32½	13.77½
May..	{ ..	10.80	10.37½	7.85	12.05
	{ ..	11.30	10.92½	8.22½	13.23
Entire	{ ..	9.70	8.72½	7.75	10.47½
range	{ ..	11.30	11.20	10.60	14.25

The Chicago lard market developed no important features during 1913. Production was larger than in 1912 and offerings in the open market were correspondingly increased, but there was a steady flow of the product and the demand was broad and reliable, with the result that producers and buyers easily arrived at a trading basis and prices did not vacillate from one extreme to the other. Choice edible tallow sold within a range of from 7¼ to 9c. a pound, a spread of 1¾c., compared with a spread of 2½c in 1912. The market held around medium figures most of the season and the average for the entire twelve months was slightly higher than that of the preceding year. Final values were near the low spot of the year, but this was due to an increase in the production and the market was in a healthy condition.

The following table shows the extreme range of prices per pound paid for tallows at Chicago during the last three years:—

	1913. H.	L.	1912. H.	L.	1911. H.	L.
Choice edible....	9	7¾	9	6½	8	6¼
Prime packers'...	8	6⅝	7⅝	6¼	7⅛	5⅝
No. 1 packers'...	7¼	6⅛	7	5⅝	7⅛	5½
No. 2 packers...	5⅝	4⅝	6	5	6⅛	5

Stearines.

Although somewhat irregular, the market for stearines at Chicago during 1913 held within a much narrower spread than in 1912. The trade was of good volume, with the demand of general character and offerings running about equal to the requirements of the trade most of the period. There were no periods of absolute famine or excessive supplies and the trend of values was more uniform than in the foregoing year. This made for a broader and more satisfactory trade and business activities were enlarged. Final quotations found the market nearer the highest level of the year than the lowest and conditions were satisfactory, with the trade in an optimistic mood.

Following table gives the high and low prices per pound of the principal grades of stearines traded in at Chicago during the last three years:—

	1913. H.	L.	1912. H.	L.	1911. H.	L.
Prime oleo.....	11½	8¾	18	8¾	12½	7¾
White grease....	7½	6¼	7½	6	7⅜	5⅝
Yellow grease....	6⅜	5¼	6⅜	5¼	6⅜	5¼

Greases.

Trades in greases at Chicago during 1913 was unusually even and regular. All grades of greases met with a good inquiry, although low acid kinds were rather favored towards the close, and the supply on sale so nearly approximated the requirements of the demand that values held within an unusually narrow range. Extreme prices touched by the most desirable grades of greases were only 1c. higher than the lowest figure made by the same grade and the close found the market in a healthy condition, with values within a fraction of the best figures made during the preceding twelve months.

Following table gives the high and low prices per pound of the principal grades of greases traded in at Chicago during the last three years:—

	1913. H.	L.	1912. H.	L.	1911. H.	L.
Choice "A" white	7	6	7½	6	7⅞	5⅝
Yellow grease....	6¼	5⅛	6	4⅝	6⅜	5
Brown grease....	5¼	4¼	5¼	4¼	6⅜	4⅝

LONDON TALLOW MARKET.

Business in tallow during 1913 was only of moderate proportions, purchases being mostly for immediate requirements with prices generally on the decline, those for better grades showing a heavier drop than for commoner sorts through the difference in values between grades being of smaller compass than in late years. Monthly quotations have covered the following ranges:—

	Fine mutton. s. d.	s. d.	Fine beef. s. d.	s. d.
January	41 0	@42 0	36 6	@38 6
February	40 0	@42 0	36 6	@38 6
March	40 0	@41 0	36 6	@38 6
April	38 0	@41 0	36 0	@39 0
May	38 0	@40 0	36 0	@38 6
June	38 0	@40 6	37 0	@38 6
July	38 6	@40 0	37 0	@38 6
August	39 0	@40 0	36 6	@38 6
September	38 0	@39 6	36 0	@37 6
October	37 0	@38 6	35 0	@36 6
November ...	37 0	@37 6	35 0	@36 0
December	37 0	@37 6	35 0	@35 6

Supplies from South America showed a decided falling off, but the deficiency was counteracted by a larger importation from Australia. Exports to the Continent were larger than in the previous year, but domestic consumers took less of imported tallow. Home tallow, in fact, was more in evidence and the exports of it also showed a substantial increase. Ability to import tallow duty -free into the United States has tended to increase the direct trade between America and Australia, but the quantity so done has not as yet been great, the margin between the markets not affording a sufficiently favorable indorsement.

Estimated importation and consumption during the last five years are shown in the following table:—

	1913. Tons.	1912. Tons.	1911. Tons.
Stocks London warehouses Jan. 1.....	3,000	4,000	2,000
Imported	60,200	58,500	70,000
Totals	63,200	62,500	72,000
Home consumption.....	15,000	16,400	13,000
Exported	43,800	43,100	55,000
Stocks London warehouses Dec. 31.....	4,400	3,000	4,000
Totals	63,200	62,500	72,000
	1910. Tons.		1909. Tons.
Stocks London warehouses Jan. 1.....	2,300		4,000
Imported	76,200		56,000
Totals	78,500		60,000
Home consumption.....	13,500		8,000
Exported	63,000		49,700
Stocks London warehouses Dec. 31.....	2,000		2,300
Totals	78,500		60,000

The origin of distribution of goods is shown in round figures in following analysis of the imports and exports:—

IMPORTS.

From.	1913. Tons.	1912. Tons.	1911. Tons.
South America and Falkland	1,400	4,200	8,950
North America.....	300	600	150
Australia	36,500	32,200	44,000
New Zealand.....	21,700	20,300	16,000
Other districts.....	300	1,200	900
From.	1910. Tons.		1909. Tons.
South America and Falkland.	10,800		7,500
North America.....	300		500
Australia	44,600		28,000
New Zealand.....	19,500		10,000
Other districts.....	1,000		1,000

EXPORTS.

To.	1913. Tons.	1912. Tons.	1911. Tons.
Russia	15,000	17,000	24,500
Germany	8,000	6,400	8,000
Holland	11,200	10,900	11,000
Belgium	3,600	3,300	5,000
Italy and Spain.....	1,300	2,700	2,700
Other countries.....	3,200	2,800	3,800
To.	1910. Tons.		1909. Tons.
Russia	30,500		25,500
Germany	8,200		6,100
Holland	13,300		9,500
Belgium	4,300		2,900
Italy and Spain.....	2,700		3,300
Other countries.....	4,000		2,400

The quantity of home-melt exported from London last year showed a considerable increase on that of the five preceding years. The figures are as follows:—

	Tons.		Tons.
1913.....	11,589	1910.....	4,340
1912.....	6,525	1909.....	6,142
1911.....	6,810	1908.....	8,155

New York Paint Market

During the first half of the year demand for paint materials was uniformly good. Prices were on a fairly steady basis and general industrial conditions were favorable; consumption of many materials of this market was above normal. In the summer months trading became quieter, but was seasonable. In the fall general business was dull and uncertainty about the workings of the new tariff law caused large buyers to be careful about committing themselves on future needs. The year considered as a whole was satisfactory. The low prices for linseed oil proved a help to consumption of all paint materials. The basic pigments also were selling on a favorable basis and under these condition it was natural for consumption to assume large proportions, especially as business in all lines was good. But two advances were made in quotations of white lead during the year, and later these advances were lost by a single reduction, so that closing prices were identical with those at the beginning of the year. Strikes among journeymen painters and decorators threatened to disturb business for a time, but were finally adjusted satisfactorily.

Dry colors were subject to keen competition and the business has not been on a very satisfactory basis. In the latter part of the year foreign offerings pere pressed for sale under the new tariff rates. Zincs also were affected by the tariff revision and prices declined as a result. Paris green was unstable in price in the spring, owing to selling pressure on the part of sellers. Price cutting was freely indulged in and bargain prices were obtained by consumers. Carbon gas black was subject to competitive selling and prices declined.

Lithopone attracted more than ordinary attention because of reports that new producers were in the field. Experimenting in the manufacture of this pigment was carried on by various people and with varying results. There is good reason to believe, however, that domestic production has increased, and consuming demand also is said to be steadily expanding. Metallic paints were steady, as referred to the higher grades of browns, and demand was about normal. The lower grades of metallics were unstable in price and sellers were not always careful to observe market quotations in making sales. Chalk was subject to private terms in some cases, but the market fluctuated but little at any time, and prices were regulated largely by the price of ocean freights. Large quantities of foreign grades of barytes reached the local market in the early summer and demand was fairly good at all times. Domestic grades were handicapped in competing for business in Eastern markets because of the high freight rates from mining points.

China wood oil held a steady course through the year and consumption was reported to be up to previous standards, though many reports were heard to the effect that demand had fallen below normal because of the lower prices asked for linseed oil. Leading sellers increased their sales over the preceding year, and imports would indicate a good call for wood oil, but the trade appears to have been unevenly divided and some sellers were reported to be carrying heavy stocks at the close of the year. Soya bean oil and other vegetable oils were bought, but sparingly by the paint trade during the year. Varnish gums sold more freely than in the year previous, and at times the activity of the market was curtailed by the scarcity of stocks. This was especially noted at various times in the case of the higher grades of kauri, Batavian damar and manjak. The main feature of the glue market was the heavy imports of foreign grades after the duty was lowered. Window glass was kept on a firm basis by the fact that production was not in excess of consumption.

Pig Lead.

A net decline equal to $4 a ton was reported during the year, as prices at New York were quoted at 4.35c. per pound at the opening of the year and 4.15c. at the close. This metal was among the items which were affected by tariff revisions. With the import duty on pig lead reduced to 25 per cent. ad valorem, foreign markets are likely to have a more important influence upon domestic prices than has been the case in the past. During the time the new tariff has been in operation, domestic markets have been as independent of foreign markets as heretofore, but this has been due to the unusually high prices ruling abroad, which are not likely to be maintained. Complications in Mexico did much to shut off European supplies, and naturally prices have been high with offerings below normal in volume. Price fluctuations in domestic markets were rather frequent, with the high point reached in the latter part of August, when the New York quotation was advanced to 4¾c. per pound. This was brought about by a strike of miners in Missouri and by reports that mines there had been flooded and must cease operations until the water had been removed. This meant a delay in making shipments, and uncertainty regarding supplies caused sellers to be careful in offering stocks. When the strike was settled and the mines again were in working order prices started to go down, and from the first of September to early in December a declining market was in evidence, which resulted in a 4c. quotation for lead in the second week of December. In the latter half

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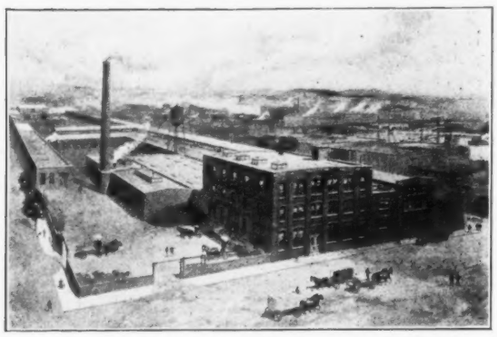

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of the month buying improved and prices advanced to 4.10c. and finally to 4.15., at which figure the year closed Market quotations in New York fluctuated during the year as follows:—

	Cents.		Cents.
January 2	4.35	October 16	4.35
April 22	4.50	November 26	4.25
May 5	4.35	December 2	4.10
July 29	4.50	December 9	4.00
August 15	4.75	December 24	4.10
October 1	4.60	December 29	4.15
October 8	4.50		

The total production of refined lead, desilverized and soft, from domestic and foreign ores in 1913 was approximately 466,843 short tons, worth, at an average New York price, $42,082,184, compared with 480,894 tons, worth $42,280,460, in 1912, and 480,945 tons in 1911. These figures do not include an estimated output of 16,338 tons of antimonial lead, against 13,52 tons in 1912 and 14,078 tons in 1911. Of the total production, desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 256,458 tons, against 221,480 tons in 1912, and desilverized lead of foreign origin at 54,372 tons, compared with 88,377 tons in 1912. The production of soft lead, mainly from Mississippi Valley ores, is estimated at 156,013 tons, compared with 171,037 tons in 1912.

The final figures of production of soft lead are likely to show an increase of a few thousand tons over those here given, for the reason that the argentiferous lead smelters and refiners undoubtedly treated more or less soft lead from the Mississippi Valley, which is not distinguished from silver lead ores in their preliminary estimates.

The amount of lead available for consumption during 1913 may be estimated by adding to the stock of foreign lead (domestic stocks are not known) in bonded warehouses at the beginning of the year (10,492 short tons) the imports (56,717 tons) and the domestic production (412,471 tons), making an apparent supply of 479,680 tons. From this is to be subtracted the foreign lead exported from warehouse (44,000 tons), the foreign lead exported in manufactures under drawback (7,214 tons in nine months), the deduction by liquidation (379 tons) and the stock in bonded warehouses at the close of the year (assumed to be the same as at the close of November, 6,031 tons), leaving as available for consumption 421,774 tons, which by comparison with 388,148 tons in 1912, with 385,319 tons in 1911 and 379,196 tons in 1910 seems to be an excessive figure, making it seem very probable that in lead, as in zinc, there has been a large increase in smelter stocks.

In London Lead was quoted at £18 per ton, but values fell away later in the month to £16½ per ton. In February and March prices continued to go down until the low level of £16⅜ per ton was reached. Under heavy buying prices then began to strengthen and in April, when trouble arose at producing points and prices climbed to £18 15-16 per ton. May was quiet, with values easy, but in July stocks were limited, and prices responded by advancing to £21½. This was the high point of the year. Prices gradually declined over the balance of the year, and December closed at £18¼ per ton.

The following table gives the price changes from January, 1909, to December, 1913, inclusive:—

	1909.	1910.	1911.	1912.	1913.
Jan.	4.10	4.70	4.50	4.45	4.35
Feb.	3.97½	4.65	4.50	4.00	4.35
April	4.15	4.40	4.50	4.20	4.50
May	4.25	4.30	4.50	4.20	4.35
June	4.55	4.37½	4.50	4.50	4.35
July	4.30	4.40	4.50	4.75	4.50
Aug.	4.35	4.45	4.50	4.85	4.75
Sept.	4.37½	4.42½	4.50	5.10	4.75
Oct.	4.37½	4.40	4.25	5.10	4.35
Nov.	4.40	4.50	4.35	4.50	4.25
Dec.	4.70	4.50	4.45	4.35	4.00

The following table shows the production of refined lead, in tons, in the United States, from 1900 to 1913, inclusive:—

	Desilvered.	Soft lead.	Total production.
1900	329,658	48,021	377,679
1901	323,790	57,898	381,688
1902	393,011	74,059	377,061
1903	295,074	83,444	378,518
1904	315,284	89,169	404,453
1905	296,186	103,116	399,302
1906	313,886	90,860	404,746
1907	314,241	99,948	414,189
1908	295,420	101,013	396,433
1909	329,310	118,802	448,112
1910	329,062	141,318	470,380
1911	331,029	155,947	486,976
1912	311,414	169,551	480,965
1913	301,830	156,013	460,843

White Lead.

Demand for white lead was very good at the beginning of the year, and continued so through the spring and summer months. Trading on fall account failed to come up to expectations, and the general business depression which prevailed in the latter part of the year was reflected in a smaller consumption of this important pigment.

Prices for white lead did not fluctuate in unison with those of the metal, but changes which were made in the pigment were caused by changes in the metal. At the beginning of the year dry white lead in large lots was quoted at 5¼c. per pound, and lead-in-oil at 6¾c. per pound. These prices were maintained until the middle of August, when pig lead had advanced to such a point that corroders were forced to demand higher prices for their output, and an advance of ¼c. per pound was made in quotations for dry white lead and for lead in oil. The next week this was followed by another increase of ¼c. per lb. in the price of these pigments. In November a reduction of ½c. per pound was made in the quotation for dry white lead and lead-in-oil, and for the balance of the year prices were unchanged. Hence the closing quotation in each case was identical with that quoted at the beginning of the year. Lead-in-oil was influenced in price during the year only by fluctuations in pig lead, for linseed oil did not change enough at any time to affect the pigment.

Early in the year the Paint Jobbers' Association of Greater New York were deeply interested in bringing about conditions which would make it more profitable for them to handle white lead. They were influenced to take some action, according to reports, by an offer from a Western corroder, who is alleged to have offered the Jobbers better terms than they were receiving from local sellers. Committees from the association conferred with local corroders, and the matter was settled without any apparent change in local conditions.

The consumption of foreign grades of white lead may be shown by the amount of imports, which compare as follows for the fiscal years enumerated:—

	Pounds.	Value.
1913	679,078	$46,527
1912	713,370	46,920
1911	659,915	38,878
1910	728,431	40,804
1909	667,417	37,493

Exports of white lead from the United States during the year were as follows:—

	Pounds.	Value.
January	1,237,758	$74,699
February	999,273	59,568
March	1,082,112	65,116
April	1,262,148	75,792
May	1,547,949	92,149
June	1,536,307	92,833
July	1,567,705	92,488
August	1,220,661	74,006
September	1,072,584	64,846
October	1,269,764	78,007
November	955,479	59,206
December	1,269,378	76,034
Totals	15,062,384	905,398

The following table shows the price of dry white lead for each month from January, 1909, to December, 1913, inclusive:—

	1909.	1910.	1911.	1912.	1913.
Jan.	5⅝@5½	5⅝@6¼	5½@6	5¼@5⅜	5¼
Feb.	5⅝@5½	5⅝@6¼	5½@6	5¼@5⅜	5¼
March	5⅝@5½	5⅝@6¼	5½@6	5¼@5⅜	5¼
April	5⅝@5½	5⅝@6¼	5½@6	5¼@5⅜	5¼
May	5⅝@5½	5⅝@6¼	5½@6	5¼@5⅜	5¼
June	5⅝@5½	5⅝@6	5½@6	5½@6	5¼
July	5⅝@5½	5⅝@6	5½@6	5⅝@6	5¼
Aug.	5⅝@5½	5⅝@6	5½@6	5⅝@6	5¼@5⅜
Sept.	5⅝@5½	5⅝@6	5½@6	5⅝@6	5¼
Oct.	5⅝@5½	5⅝@6	5¼@5⅜	5⅝@6	5¼
Nov.	5⅝@5½	5⅝@6	5¼@5⅜	5¼@5½	5¼@5⅜
Dec.	5⅝@6	5½@6	5¼@5⅜	5¼@5⅜	5¼

Red Lead.

Although competition of other materials has been more in evidence in the past year, demand for red lead through the biggest part of the year was very good, and total consumption was satisfactory to producers. Large quantities of red lead were called for by the United State Navy Department throughout the year.

At the beginning of the year prices were quoted at 6½@7c. per pound, and this quotation was maintained until August, when the appreciation of pig lead prices caused two successive advances in quotation for the oxide, making a total advance of ½c. per pound, thus putting red lead at 7@7½c. per pound. This quotation was observed until late in the year, when the metal market eased off and then red lead differed in price at 6@6½c. per pound, the inside figure being offered by one seller, while others held out for the higher quotation. Towards the end of the year a new feature was introduced, when leading sellers offered red lead in oil on the market. The latter was offered on a basis of 7¼c. per pound for round lots.

The production of red lead in 1912 was 21,120 short tons, valued at $2,571,702, an increase of 1,580 short tons in quantity and of $226,382 in value over the output of 1911. The average price per ton increased from $120.02 in 1911 to $121.77 in 1912.

Imports of red lead during the past five fiscal years are indicated by the following figures:—

	Pounds.	Value.
1913	145,478	$7,227
1912	1,106,092	47,481
1911	1,035,254	40,225
1910	822,617	33,040
1909	802,226	35,568

The subjoined table shows the high and low prices of domestic red lead for each month of the years mentioned:—

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	7	6¾	7¼	6½	7¼	6½	7	6½	7	6½
Feb.	7	6¾	7¼	6⅝	7¼	6½	7	6½	7	6½
March	7	6¾	7¼	6⅝	7¼	6½	7	6½	7	6¾
April	7	6¾	7¼	6⅝	7½	6½	7	6½	7	6½
May	7	6¾	7¼	6⅝	7½	6½	7	6½	7	6½
June	7	6¾	7¼	6⅝	7¼	6½	7½	6⅝	7	6½
July	7	6¾	7¼	6½	7	6½	7½	7	7½	7
Aug.	7	6¾	7¼	6½	7	6½	7½	7	7½	7
Sept.	7	6¾	7¼	6½	7	6½	7½	7	7½	7
Oct.	7	6¾	7¼	6½	7	6½	7½	7	7½	7
Nov.	7	6¾	7¼	6½	7	6½	7	6½	7	6½
Dec.	7	6½	7¼	6½	7	6½	7	6½	6½	6

Litharge.

The production of litharge in 1912 was 29,111 short tons valued at $3,194,194, as compared with 25,190 short tons, valued at $2,773,196 in 1911. This shows an increase in quantity of 3,921 tons and in value of $120,998. The average price per ton was $110.09 in 1911 and $109.72 in 1912.

BARRETT TRADE B MARK STANDARD

COAL TAR PRODUCTS

Benzol, Pure
Benzol, 100%
Benzol, 90%
Benzol, 50%
Benzol, Straw Color
Toluol, Pure
Toluol, Commercial
Toluol, Straw Color
Xylol
Solvent Naphtha
Barrettol
V. M. & P. Coal Tar Naphtha
Heavy Naphtha

Creosote Oil
Special Heavy Oil
Shingle Stain Oil

Crude Carbolic Acids
Dip Oil
Crude Cresylic Acids
Crystal Carbolic Acid
Refined Cresylic Acid

Naphthaline Flake
Naphthaline Balls
Naphthaline Granulated
Naphthaline Powdered
Naphthaline Rice
Naphthaline Tablets

Disinfectants

BARRETT MANUFACTURING COMPANY
CHEMICAL DEPARTMENT
FRANKFORD PHILADELPHIA

Consumption of litharge was reported to have shown an increase over preceding years until the last quarter of the year, when demand from the paint and other consuming trades fell off. Prices were subject to but few fluctuations, and these were caused by changes in the cost of raw materials. Prices for litharge have varied according to seller and quantity. The card price has been on the same basis as the quotations for red lead, but large consumers have been able to obtain supplies at 5½c. with the exception of the period from August to November, when 6c. was quoted. At the close of the year 5½c. was generally quoted for large lots.

Imports of litharge for the fiscal year ending June 30, 1913, together with comparisons, were as follows:—

	Pounds.	Value.
1913	34,022	$1,642
1912	28,079	1,231
1911	16,843	764
1910	91,529	4,204
1909	89,754	3,088

The highest and lowest quotations for domestic litharge on the local market for the past five years are indicated below:—

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	7	6¾	6¾	5⅝	6	5⅝	7	6½	6½	5½
Feb.	7	6	6¾	6¼	6	5⅝	7	6½	6½	5½
March	6¼	5⅝	6⅜	6¼	6	5⅝	7	6½	6½	5½
April	6¼	5⅝	6⅜	6¼	6	5⅝	7	6½	6½	5½
May	6¼	5½	6⅜	6¼	6	5⅝	7	6½	6½	5½
June	6¼	5½	6	5⅝	6	5⅝	7¼	6⅝	6½	5½
July	6¼	5½	6	5⅝	6	5⅝	7½	7	6½	5½
Aug.	6¼	5½	6	5⅝	6	5⅝	7½	7	7	6
Sept.	6¼	5½	6	5⅝	6	5⅝	7½	7	7	6
Oct.	6¼	5½	6	5⅝	6	5½	7	6½	6	5½
Nov.	6¼	5½	6	5⅝	6	5½	7	6½	6	5½
Dec.	6¼	5¾	6	5⅝	6	5½	7	6½	6	5½

Orange Mineral.

Competition for business has been keener in this market than formerly, and selling pressure, especially in the latter half of the year, caused prices to go in buyers' favor. Trading was mostly of a routine nature. Changes in the tariff schedule were in favor of foreign material.

Production of orange mineral in 1912 was placed at 545 short tons, valued at $88,245, as compared with 766 short tons, valued at $119,370, in 1911. The average price per ton was $161.92 in 1912 and $155.84 in 1911.

Imports of orange mineral for the fiscal year, together with comparisons, are shown by the following figures:—

	Pounds.	Value.
1913	287,535	$18,595
1912	443,802	25,908
1911	923,254	56,577
1910	541,273	29,591
1909	514,129	27,806

Prices for domestic orange mineral for each month of the year and for the past three years were as follows:—

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January	10	8½	10	8½	10	8½
February	10	8½	10	8½	10	8½
March	10	8½	10	8½	10	8½
April	10	8½	10	8½	10	8½
May	10	8½	10	8½	10	8½
June	10	8½	10	8½	10	8½
July	10	8½	10	8½	10	8½
August	10	8½	10	8½	8½	7½
September	10	8½	10	8½	8½	7½
October	10	8½	10	8½	8½	7½
November	10	8½	10	8½	8½	7½
December	10	8½	10	8½	8½	7½

Spelter.

The production of primary spelter from domestic ore in 1913 is estimated at 336,667 short tons and from foreign ore at 8,908 tons, making a total of 345,575 tons. This compares with 338,806 tons in 1912.

Spelter opened at St. Louis in January at 7.17 cents a pound, the maximum figure of the year. This price held until the middle of the month, when, possibly influenced by the importation of foreign spelter of which over 5,000 tons entered in January, it took a sharp drop, which continued

DRY

BLACKS AND COLORS

LIGHT, HEAT, LIME and ACID PROOF

SIEMON & ELTING

93 NASSAU ST. - - - NEW YORK

with the exception of a slight break in the early part of March, until the middle of June, when spelter reached 4.97½ cents a pound, the lowest pri e of the year. A rise then followed which brought spelter to 5.85 cents a pound during the closing week of August. A decline set in which left spelter bringing 5.05 to 5.10 cents per pound at the close of the year. The average price of the metal for the year at St. Louis was 5.6 cents a pound.

Zincs.

In the report of the Geological Survey it is stated that the three white pigments having zinc for a base either wholly or in part are zinc oxide, zinc-lead oxide—of which there was none produced in 1912—and leaded zinc oxide. In the United States these pigments are usually made directly from ore. During 1912 zinc oxide and eaded zinc made directly from ores were reported from Pennsylvania, Wisconsin, Virginia and Kansas. In order to conceal individual returns, the statistics of production of zinc oxide, leaded zinc, sublimed white lead or basic lead sulphate and sublimed blue lead or blue fume have to be combined for 1912. The total amount of this material produced amounted to 106,497 short tons, valued at $9,507,895. As compared with the production of 1911, this was an increase of 25,886 tons, or 32 per cent., in quantity, and of $2,164,133, or nearly 30 per cent., in value.

Demand for zincs was quite good through the year and especially so for the first nine or ten months. Of desided importance was the change in tariff rates which lowered the duty on imports of zincs. This had the effect of bringing lower quotations for foreign grades and also forced a decline in the market prices for domestic zincs. In the latter part of the year prices were quoted at 5⅝@6¼c. for American process; 6½c. for French process, red seal; 7½c. for French process, white seal; German brands (French process), 6¾c. for red seal, 7¾c. for green seal, 8½c. for white seal.

Exports of zincs for the past four calendar years were as follows:—

	Pounds.	Value.
1913	28,932,953	$1,136,257
1912	34,128,163	1,247,702
1911	29,236,779	1,051,311
1910	26,333,993	943,968

Imports of zincs are shown by the following table, the figures being for the fiscal years mentioned:—

	Pounds.	Value.
1913	6,148,120	$389,485
1912	4,842,948	310,362
1911	5,262,770	331,337
1910	6,626,902	379,445
1909	5,902,259	311,588

Dry Colors.

The dry color industry generally considered was not on a satisfactory basis in 1913. Competition was very keen and prices were brought to a level where profits were decidedly small. Market quotations were not very reliable, for private terms were made on sales and discounts also varied according to seller, which prevented any flat quotation for certain items of this market. Blacks were in steady demand through the year. Carbon gas black was interesting because of competition which arose among sellers. This led to concessions to buyers and in the latter part of the year carbon gas was quoted at 3½c. per pound f. o. b. works, which was a reduction of ¼c. per pound over the price asked during the first part of the year. Other grades of black were steady both in demand and price. Competition also furnished considerable life to the market for paris green. Different sellers were quoting different prices and the market during the active season was unsettled. Consumption of other dry colors was about normal, but the year closed with a slow call for the materials of this market.

The U. S. Geological Survey reports the production of ocher in the United States in 1912 as 15,269 short tons, valued at $149,289, compared with 11,703 short tons, valued at $109,465 in 1911. The average price per ton in 1911 was $9.35 and in 1912 $9.78. The total quantity of umber and sienna produced in the U. S. in 1912 was 805 short tons, valued at $21,975, a decrease of 200 tons in quantity and $4,250 in value, as compared with the figures for the previous year. The average price of umber and sienna, a ton was $27.30 in 1912 and $26.09 in 1911. The production of mortar colors in 1912 was 9,272 short tons, valued at $87,595, an increase of 1,350 tons in quantity and of $11,078 in value over 1911. The average price was $9.45 per ton in 1912 and $9.06 in 1911. The material entered the market first in the dry, ground condition and above prices refer to the condition.

The import trade in dry colors is shown by the following tables:—

CHROME YELLOW OR GREEN.

	Pounds.	Value.
1913	148,209	$23,405
1912	161,153	24,731
1911	156,733	25,516
1910	156,586	26,029
1909	170,073	28,107

SIENNA, GROUND IN OIL OR WATER.

	Pounds.	Value.
1913	7,421	$502
1912	751	87
1911	9,883	643
1910	7,780	634
1909	10,043	630

UMBER (CRUDE) NOT POWDERED, WASHED OR PULVERIZED.

	Pounds.	Value.
1913	5,256,077	$29,391
1912	2,962,166	13,377
1911	2,557,313	13,265
1910	3,235,771	19,429
1909	1,996,474	12,716

UMBER, POWDERED, WASHED OR PULVERIZED.

	Pounds.	Value.
1913	817,500	$11,217
1912	762,772	11,283
1911	492,331	6,372
1910	845,793	12,271
1909	708,587	10,194

BLUE, BERLIN, PRUSSIAN, CHINESE, ETC., IN PULP, DRY OR GROUND.

	Pounds	Value.
1913	193,336	$34,476
1912	137,999	24,606
1911	189,681	34,804
1910	206,539	37,360
1909	188,104	39,008

ULTRAMARINE, DRY, IN PULP OR MIXED WITH WATER.

	Pounds.	Value.
1913	694,938	$62,259
1912	745,091	66,435
1911	685,933	65,817
1910	709,726	66,201
1909	731,469	63,074

PARIS GREEN AND LONDON PURPLE.

	Pounds.	Value.
1913	165,820	$7,692
1912	183,089	4,783
1911	22,193	2,361
1910	192,647	15,392
1909	211,856	22,550

VERMILION.

	Pounds.	Value.
1913	85,337	$14,753
1912	72,075	38,838
1911	90,141	53,040
1910	70,666	35,796
1909	81,292	41,590

Exports of carbon black and lampblack for the past three calendar years were valued as follows:—

1913	$470,439
1912	658,849
1911	813,934

Barytes.

The production of crude barytes in the United States in 1912 was 37,478 short tons valued at $153,313. Compared with the production of the preceding year, which was 39,445 short tons, valued at $122,792, this was a decrease of 967 tons in quantity but an increase of $30,521 in value. Thus the average price per ton reported to the Survey in 1912 was higher than in 1911, being $4.09, compared with $3.19. The price given is that paid to the miner for his crude ore, hand cobbed, sorted, and ready for shipment to the mills. This price is not supposed to include the cost of haulage by wagon, boat or railway, and it is believed that the cost of haulage was not included in the values reported for 1911 and 1912. The price of the crude material f. o. b. mines reported by most of the principal producers in 1912 was higher than in 1911. The average price for the State of Missouri was $4.77 per ton, which was substantially the average price in Washington county, Missouri, the principal producing county in the State. At the close of 1912 6,262 short tons of crude domestic barytes remained unsold at the mines, according to reports from the producing districts, as compared with 6,162 tons in 1911. From Missouri forty-seven producers reported an output of crude barytes, but the production of most of them was small. From Tennessee three producers reported and from Georgia, North Carolina and Virginia one producer reported in each State. Six firms reported production of refined barytes, their plants being located in Missouri, North Carolina, South Carolina, Tennessee and Virginia.

The total quantity of refined barytes reported as sold by mills in 1912 was 38,225 short tons, valued at $495,805. As compared with the production in 1911, which was 39,611 short tons, valued at $503,867, this was a decrease of 1,386 tons in quantity and of $7,972 in value. The average price per ton reported as received for refined barytes in 1911 was $12.72, as compared with $12.97 in 1912. At the close of 1912 there were 1,760 tons of refined barytes still in the hands of the various refiners.

Quotations for barytes have varied according to quantity, with foreign grades ranging from $19 to 24 per ton. Domestic grades were held at $17@20 per ton, and off-grades at $13@15 per ton.

Imports of barytes during the year are shown by the following figures of imports for the fiscal year ending June 30, with comparisons for previous yeods:—

BARYTES, NOT MANUFACTURED.

	Tons.	Value.
1913	28,358	$83,345
1912	20,988	40,941
1911	18,394	45,062
1910	10,020	32,110
1909	13,378	47,505
1908	18,118	82,911

BARYTES, MANUFACTURED.

	Tons.	Value.
1913	4,594	$36,819
1912	2,680	21,642
1911	3,263	26,462
1910	2,699	27,191
1909	2,879	27,156
1908	5,492	50,984

Chalk.

The decline in ocean freight combined with large arrivals from abroad had a tendency to weaken prices for chalk in the first quarter of the year. Trading also was featured early in the year by the importation of chalk to a southern city, the material coming from Mexico. The year opened with English chalk held around $4 per ton, and French chalk at $4.25 per ton. With the decline in transportation costs prices went to $2.75@3 per ton for English, and $3.10@3.50 per ton for French, and these quotations remained in force for the greater part of the year. Imports of chalk for the fiscal year ending June 30 were as follows:—

	Tons.	Values.
1913	150,010	$120,040
1912	151,868	128,190
1911	123,278	117,041
1910	116,115	103,847
1909	96,311	93,452

China Clay.

Owing to difficulty in obtaining freight room the arrivals of china clay were smaller than they usually would have been. During the summer a strike lasting about ten weeks further held up shipments of china clay from England, and caused prices to be firmly held in domestic markets. Quotations for china clay are $8@9 per ton for domestic, and $14@16 per ton for foreign grades in casks.

Imports in tons of china clay by months during the past two years were as follows:—

	1913.	1912.
January	13,358	15,083
February	19,699	28,241
March	22,755	19,531
April	33,042	27,564
May	27,969	21,312
June	29,407	17,122
July	13,413	23,912
August	19,833	15,725
September	32,273	23,892
October	8,272	16,260
November	22,466	12,277
December	25,599	23,461
Totals	246,380	240,120

Fullers Earth.

According to official figures the value of fullers earth produced in the United States in 1912 was $305,522, and Florida was the leading producing State. The principal use of fullers earth in this country is in the bleaching, clarifying or filtering of fats, grease and oils. The market for fullers earth was quiet, but steady through the year, and prices varied according to quality. Imports of fullers earth for the fiscal year with comparisons were:—

	Tons.	Values.
1913	16,866	$145,588
1912	16,175	138,111
1911	15,813	125,899
1910	13,192	118,956
1909	11,489	100,269

Lithopone.

Two important features of the market for lithopone during the year have been the listing of this article separately on the tariff schedule and the reducing of the import duty, and secondly the increase in production in this county. It is difficult to obtain reliable data regarding the extent of domestic production, but in 1912 the home output was placed at 24,220 short tons, valued at $1,702,119, against 16,866 short tons, valued at $1,243,108 in 1911, and 12,693 short tons, valued at $919,407 in 1910. As up to this time lithopone has not been listed separately among imported articles, reliable figures also are lacking regarding the amount imported each year, but unofficial figures place imports at the port of New York for the fiscal year ending June 30, 1911 at 4,248,651 pounds. Total consumption in this country is reported to have more than doubled in the past three years. Prices have been steadily declining as a few years ago 7c. per pound was quoted by sellers, while during the past two years prices have been as low as 3¼@3¾c. Increased demand for lithopone was reported in Europe last year, and some makers were sold ahead on the first half of 1914. In domestic markets some manufacturers have had trouble in producing an article which would measure up to the standards of consumers. Considerable experimenting has been done and prices in some cases have been based on quality. For commercial, 30 per cent. lithopone 3¾@4½c. per pound has been quoted by sellers, but low priced offers were heard late in the year after the new tariff schedule became effective. Paint manufacturers in some instances bought direct in European markets and did their own importing into this country.

Metallic Paints.

The production of metallic paints in 1912 is placed at 28,347 short tons, valued at $181,352, as compared with 25,599 short tons, valued at $181,163 in 1911. The production in some States is given mainly in terms of dry, ground products and the average price is considerably greater than that produced in some States as ore, and sold as such to paint mills. The maximum price of metallics, that of ground paint in the State of Washington, was $12,23 a ton. The average price was $6.40 per ton, which shows that a large part of the production averaged considerably below the latter figure, such portions being material that comes on the market originally in the form of unground iron ore. The price of crude ore sold in that condition varies between $2.39@4.73 per ton. A successful year was reported by leading sellers of metallics. Demand has usually been for prompt delivery and contract business has not been active. The better grades of brown held fairly steady through the year with values quoted at $18@20 per ton. The lower grades were subject to considerable price cutting, and competition for business in all grades of metallics was very keen at all times. Towards the end of the year one seller was prevented from making delivery because of floods in the mines, but this was merely a temporary set back.

Talc.

According to official records covering statistics of the talc and soapstone industry in this country, there was produced in 1912, 159,270 short tons, valued at $1,706,963. Of this, the total marketed production of talc and soapstone for that year was 133,289 short tons, valued at $1,097,483. The imports of talc during the same period are given as 10,989 short tons, valued at $122,956. The highest average price of ground talc during the year is given at $12.62 per ton. For the Pacific coast region $12.06 was the average price for the best grade of talc from western North Carolina. Prices for talc were quoted at $10@20 per ton, for domestic; $13@20 per ton, for French, and $18@30 per ton, for Italian. Imports of talc for the fiscal year compares as follows:—

	Pounds.	Value.
1913	23,660,085	$122,623
1912	20,465,942	117,094
1911	12,653,335	82,787
1910	18,477,655	116,886
1909	14,767,760	94,761

Whiting.

Fairly normal conditions were reported in the market for white over the year. The paint trade was reported by some manufacturers to have increased their requirements and normal quantities were taken by the rubber trade. During the summer, trading was reported as slow, but this is customary at that period of the year. Some factories were working at full capacity for the greater part of the year. Raw materials were steady in price and this was reflected in quotations for whiting. Good contract buying featured the closing months of the year.

Imports of whiting and paris white, dry, for the fiscal year compare as follows:—

	Pounds.	Value.
1913	3,536,747	$14,032
1912	3,729,155	14,578
1911	4,656,958	18,758
1910	2,868,239	16,305
1909	2,089,981	13,540

Imports of English cliffstone were as follows:—

	Tons.	Value.
1913	5,626	$6,167
1912	8,522	11,167
1911	.....	.....
1910	8,618	12,260
1909	10,767	16,437

Glues.

The outstanding feature in the glue market was the reduction in duty to one cent per pound on import of low-grade glues. This had a decided effect upon trading in the latter half of the year. For some time before the tariff bill was signed and became a law it was admitted that the lower duty would prevail and this increased demand for the foreign grades naturally resulted in a smaller call for domestic offerings. When the new duty became effective there were very large amounts of glue in bonded warehouses waiting to be released and delivery during the last months of the year was far ahead of previous standards. At the beginning of the year the glue trade was in a fair position and threatened tariff revision was the only cloud upon the horizon. Manufacturers were holding prices on a fairly steady basis and much of the price cutting of preceding years was absent. Certain manufacturers were sold ahead and business in general was good. The scarcity of hides and bones was a market factor over the year and prices for these materials had advanced to such an extent that the grades of glue made from such materials were firm in price. Similar conditions were reported in Europe until late in the year when reports from Germany indicated lower values for bones.

Imports of glue for the fiscal year, together with comparisons, were:—

	Pounds.	Value.
1913	5,099,661	$672,266
1912	7,406,641	770,130
1911	8,089,745	786,615
1910	8,817,563	851,225
1909	6,415,265	647,528

Imports of glue in pounds for each month of the calendar year were as follows:—

	1913.	1912.
January	611,544	745,861
February	480,866	553,684
March	639,711	585,974
April	503,651	628,360
May	533,671	620,823
June	587,807	648,524
July	363,206	325,637
August	384,856	624,326
September	534,643	451,376
October	946,636	734,301
November	1,836,842	459,719
December	2,106,359	577,578
Totals	9,529,792	6,976,173

Imports of gelatine in pounds during the calendar year were:—

	1913.	1912.
January	70,656	85,613
February	79,586	66,241
March	114,385	69,115
April	144,820	58,934
May	309,443	55,009
June	146,909	44,664
July	173,736	29,164
August	105,178	49,150
September	188,484	55,809
October	124,355	79,779
November	264,007	56,417
December	293,453	33,955
Totals	2,015,012	683,859

Imports of glue stock for the past

four calendar years were valued as follows:—

	Value.
1913	$1,851,983
1912	1,732,068
1911	1,655,704
1910	1,612,720

Varnish Gums.

Consumption of varnish gums was unusually good through the year. The scarcity of stocks at times prevented trading from becoming still more active. In the early part of the year the better grades of kauri gum were in small supply and it was difficult to obtain shipments so that prices were established on a high basis. Later in the year offerings became more numerous and prices became easier. At the close of the year it was reported that production of kauri at the mines was interfered with, but this was not the case. Batavian damar was very scarce for the greater part of the year and prices went as high as 21c. per pound, but late in the fall offerings were plentiful and prices dropped to 14c. Singapore damar sold well, while the Batavian grades were unobtainable. Manjak was out of the market in the latter part of the year, owing to the floundering of the only producing mine. Manila gums were in good demand through the year.

Imports of varnish gums for each month of the year, together with comparisons for the previous year were:—

	1913. Pounds.	1912. Pounds.
January	2,372,208	2,140,585
February	2,159,859	1,116,620
March	2,840,213	2,634,289
April	2,704,890	1,769,282
May	1,873,079	2,640,230
June	2,375,777	1,044,188
July	3,902,294	936,769
August	2,592,451	2,232,261
September	3,013,062	2,636,126
October	3,173,304	3,413,305
November	1,772,907	1,671,931
December	3,127,377	3,254,372
Totals	31,708,842	25,894,403

Imports for the past three calendar years were:—

	Pounds.	Value.
1913	31,708,842	.....
1912	25,894,403	$2,080,853
1911	24,463,317	2,058,115

Window Glass.

Production of window glass was somewhat curtailed in 1913, and the output was pretty much on a par with consuming demand, so that the possibility of accumulated stock was done away with. Prices for glass remained steady throughout the year, no change in discounts having been announced. The price-cutting evil was not conspicuous and full prices were realized on sale. The method of selling through brokers was carried out successfully by some manufacturers. A new feature of the year was the packing of all glass in the 100-inch bracket, and over, in 100-feet boxes, this gave general satisfaction. The charge for boxing was adhered to at all times. The fire was discontinued on May 29 and did not start up again until October 27, and this gave a good opportunity to reduce stocks and start the fall months with glass in a firm position. Changes in the tariff were feared by domestic producers of glass, but no important consequences have followed as a result of the tariff revision. Imports of cylinder, crown and common window glass for the past three calendar years were:—

	Pounds.	Value.
1913	23,115,982	$1,070,485
1912	24,325,178	967,534
1911	26,520,858	902,916

Naval Stores Market

NEW YORK.

Turpentine.

This industry has passed through a troublesome and an unsatisfactory year and business, while of fair aggregate proportions, was placed at prices unfavorable to producers. The course of prices was downward, with occasional rallies until August, when the bear movement culminated and prices started upward. The first half of the year was characterized by a spectacular decline, the extreme movement extending from 47 cents a gallon to 38 cents. The maximum figure was recorded in March in a quiet market. At this time supplies at primary points appeared to be well held and the market seemed destined for a higher trading plane. Late in March, the failure of the American Naval Stores Company was announced and all through the remainder of the spring and up until the first week in August the market declined under liquidation. The failure of the big concern forced several other smaller distributing companies into the hands of receivers and at times the market was in a semidemoralized condition. Consumers, realizing the situation, bought from hand to mouth and it became difficult to transact big business owing to the lack of confidence in values.

The following is a comparison of receipts of spirits of turpentine at Savannah for five years ending March 31:—

1912-13	216,534	1909-10	174,346
1911-12	208,981	1908-09	238,143
1910-11	171,689		

The following is a comparison of shipments of spirits of turpentine from Savannah for five years ending March 31:—

1912-13	218,174	1909-10	189,734
1911-12	194,032	1908-09	238,557
1910-11	178,589		

The following is a comparison of stocks of spirits of turpentine at Savannah for five years ending March 31:—

1912-13	14,933	1909-10	8,474
1911-12	16,523	1908-09	23,862
1910-11	1,574		

Stocks at Savannah on April 1 were 14,933 barrels, compared with 16,523 barrels on April 1, 1912. The price in New York at this time was 45 cents a gallon. The advance of the producing season brought out heavier receipts and aside from the disposal of these stocks the market had to contend with the constant liquidating sales from the defunct concerns. The pressure was too great for values and price cutting was continually resorted to in order to induce buyers to operate. By July the market had settled to a 38½ cent level. There were frequent reports in July of a concerted effort on the part of producers to restrict the output and desperate means were spoken of to bring about improvement in trade conditions. During the first week in August local sales were made at 38 cents a gallon, which proved to be the low point of the year. On August 8, a meeting of naval stores operators was held at Jacksonville, Florida, for the purpose of discussing the unsatisfactory conditions of the naval stores market, it seemed to be the consensus of opinion that the situation complained of would last for some time. The following remedies were suggested: First, that the operators ask their factors to refuse to loan any more money for supplies and expenses, thereby forcing all to cease operations for a period of sixty days or more. This was not thought to be a good plan because it was not thought fair to try to force the operators to take a stand upon the question through such drastic action. Second, to suspend operations voluntarily for sixty days or more. The objection raised to this move was that the big operators in the West who were now making money would not stop, but would continue to operate and make more money. These men do not deal through factors and have been able to sell upon Savannah prices in various sections of the country. Third, throw all the present over-production on the market. This plan would reduce the false market now existing to such a point that the independent producers who act as factors for themselves would fail to make money and be forced to stop operations. This conclusion reached was that production would have to be curtailed because of the vast overproduction, it being claimed that this overproduction would reach enormous proportions. No concerted action was taken, each producer being expected to act independently, keeping the knowledge of the conditions in mind.

From a producing standpoint the resolutions of this meeting were never carried out to any appreciable degree, but the sentimental effect of the proposed reduction of output had a tonic influence on values. At the close of August prices had recovered to 42 cents a gallon. During September and October many new distributing companies entered the field and these concerns, buying from the factors, gradually distributed holdings and the market developed a steadier tone. In November considerable foreign buying strengthened the Savannah market and local prices advanced to 47½ cents, which was the highest price registered in 1913. Demand subsided in December and the market receded to 45½ cents when it closed. The following table shows the highest and lowest prices of spirits of turpentine at New York for each month from January, 1910, to December, 1913, inclusive. The figures are based on the closing quotations each successive week:—

	1910. H.	1910. L.	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	63½	59½	87	80½	54	50½	45½	42½
Feb.	63	62½	91½	87	51	49½	46½	45½
March.	64	63	1.12	91	53½	50½	47	41½
April.	63½	62	1.12	76	50	47½	45	42½
May.	65	62½	77	63½	52	49½	43½	41
June.	62½	59	60	54	49½	47½	39½	38½
July.	72½	63¼	57	53	47	46½	39¼	38½
Aug.	73	71	57	52	46½	43½	42	38
Sept.	79½	75	55½	51½	43	41	43	41
Oct.	81	77½	53¾	50	44½	42	45	41½
Nov.	81	78½	50	48	42	37½	47½	46½
Dec.	80½	78	54	52	43	38	46½	45½

Rosins.

The movement of rosin values during the year was similar to that in turpentine, only the decline was more consistent and scarcely any improvement in prices was registered during the closing months. The more marked depreciation in rosins finds it explanation in the heavy concentration of supplies in the leading quarter, wrhich at the time of its suspension were estimated at 400,000 to 500,000 barrels. Its holdings of turpentine were relatively moderate. The highest prices of the year were recorded in February. The common grades, which we use as a barometer for the general trend of values, sold at $6.50 per barrel of 280 pounds against a price at the beginning of the year of $5.75. After the big failure in March, sales were made at $5.75 and by April the market had fallen to $4.75. Up to this time there seemed to be a determined effort to convert rosin holdings into cash regardless of prices.

The following is a comparison of receipts of rosin at Savannah for five years ending March 31:—

1912-13	747,549	1909-10	625,032
1911-12	724,395	1908-09	834,800
1910-11	612,429		

The following is a comparison of shipments of rosin from Savannah for five years ending March 31:—

1912-13	728,550	1909-10	671,658
1911-12	682,306	1908-09	759,113
1910-11	666,542		

The following is a comparison of stocks of rosin at Savannah on March 31 for five years:—

1912-13	91,206	1909-10	84,231
1911-12	72,207	1908-09	140,857
1910-11	31,118		

Early in May naval stores factors of Savannah, Jacksonville and Pensacola, representing 65 to 75 per cent. of the entire production, met at the Savannah Hotel and perfected the formulation of a "pool" whereby from that time on the form of marketing rosins, which was in vogue more than two decades ago, was made effective. The factors did not anticipate during the first year disposing of their entire stocks, but it was stated that the disposal of 50 per cent. of the first year's receipts would be sufficient to expect. The method put into effect enabled the producer of rosin to deal with the consumer direct, the factors simply carrying the stocks for him and disposing of them through their agent. A buyer of rosin could secure as much of any one or more grades desired without the necessity of having to buy a factor's entire line in order to get desired grades, as had been the case in the past, that method forcing him to carry stocks indefinitely that he had no demand for. It was the purpose of these factors to sell rosin by grades in any quantity wanted. It was their purpose to use every effort to bring the consumer in closer touch with the producer and to do away as far as possible with the necessity of a large distributing house carrying the burden of the excess supply of rosin as before. It was not the purpose of the factors to attempt to put out of business any buying house, large or small, but to induce an increase in the number of buyers by offering their facilities in a larger degree than for some time past. When this system was put into effect rosin was no longer sold by lines, but the purchaser could get any grade in any quantity he desired at the ruling quotations. It was furthermore the purpose of these factors to prevent manipulation of the violent fluctuations in quotations, establishing a market on a more stable basis.

The formation of the factors' pool had no tendency to check the decline of values and all through the summer and up to October the market depreciated. In October a basis of $3.90 had ben established in the local market for common strained. At this point heavy export buying stiffened prices moderately and the market recovered to $4.10 when it closed. In the following table is given the lowest and highest price of common strained rosin in the local market for each month during the past year, and for 1912 and 1911. Prices are based on the closing quotations each week and represent the unit of 280 pounds.

	1911 Low.	1911 High.	1912 Low.	1912 High.	1913 Low.	1913 High.
Jan.	$6.50	$7.60	$6.75	$7.25	$5.75	$6.35
Feb.	7.25	8.55	6.75	6.75	5.95	6.50
March.	7.65	8.55	6.75	6.90	5.75	6.50
April.	7.90	8.65	6.50	6.90	4.75	5.75
May.	6.95	7.50	6.50	6.60	4.75	4.75
June.	6.50	6.95	6.45	6.70	4.25	4.40
July.	5.85	6.40	6.20	6.54	4.00	4.50
Aug.	5.60	6.40	6.45	6.55	4.20	4.30
Sept.	6.55	6.57½	6.55	6.55	4.05	4.20
Oct.	6.55	6.90	6.50	6.55	3.90	4.00
Nov.	6.50	6.90	6.20	6.40	4.00	4.10
Dec.	6.50	7.40	5.75	6.00	4.10	4.10

Tar.

While the market was inclined to sympathize with the price movements of turpentine and rosin during the first half of the year, the last six months witnessed an entire reversal of form and prices from July forward advanced sharply and maintained their strength until the close. The strength was attributed to the disolution of certain producing companies in the South which required dealers holding contracts to go into the open market and bid for supplies to cover their requirements. The year opened at $6.50 and $6.25 for kiln burned and retort tar in barrels. The lowest prices were recorded in May, when both grades sold at $5.75. In September $8 was paid and at the close $7.75 and $8 was quoted for retort and kiln burned. The following table shows the highest and lowest in the New York market for kiln-burned tar in oil barrels, of 50 gallons, for each month from January, 1910, to December, 1913, inclusive:—

	1910. H.	1910. L.	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	6.00	5.75	7.25	7.25	5.75	5.75	6.75	6.25
Feb.	6.00	6.00	7.25	6.75	5.75	5.75	6.75	6.25
March.	6.00	6.00	7.00	6.75	5.75	5.75	6.75	6.25
April.	6.00	6.00	7.00	6.75	5.75	5.75	6.75	6.25
May.	6.00	6.00	6.50	6.00	5.75	5.75	6.00	5.75
June.	6.25	6.00	6.00	6.00	5.75	5.75	6.25	6.00
July.	6.70	6.25	6.00	5.75	5.75	5.75	7.50	5.75
Aug.	7.00	6.75	6.50	6.00	5.75	5.75	7.50	6.50
Sept.	7.50	7.50	6.00	5.75	6.25	5.75	8.00	7.00
Oct.	7.50	7.50	6.00	5.75	6.25	6.25	7.50	7.00
Nov.	7.50	7.50	5.75	5.75	6.25	6.25	8.00	7.25
Dec.	7.50	7.50	5.75	5.75	6.75	6.50	8.00	7.75

Rosin Oil.

The first and second distillations of rosin oil have found a ready outlet during the past year for requirements in the printing ink, axle grease, paint and various other consuming trades. Third and fourth distillations have not prompted active attention and production throughout the year was on a very limited basis. The high cost of manufacture for the better grades has made it unprofitable to use them extensively and substitutes of various kinds have gradually taken the market away. The year opened with first rectified, held at 34c. a gallon, second rectified 40@48c., third rectified 45@63c., and fourth rectified 50@73c. The constant decline in the prices of common rosins from which oil is distilled weakened the market and in April all grades were obtainable at a decline averaging 2c. a gallon. In May a similar revision was made and in September the market was established at 27c. a gallon for first rectified, 38c. for second, 48c. for third and 60c. for forth. These prices remained unchanged during the remainder of the year. Many substitutes were offered for sale which were called rosin oils during the year at much lower prices. Much of this material was a petroleum or coal tar product and sold at prices under pure rosin oil. The cost of each distillation of rosin oil is said to be 10@12c. a gallon.

SAVANNAH NAVAL STORES MARKET.

Savannah as a naval stores port continues to maintain her position as the most important port in the world in the marketing of naval stores. The market at this port is a free and open one with sufficient banking facilities, and its shipping requisites, both domestic and foreign, unsurpassed.

The year opened with the market promising little or no encouragement as to prices for the ensuing year and the factors, or agents for the producers, being alive to the situation existing as compared with several years past were loath to advance too heavily to the producer for his operations during the year, consequently he was obliged to work on less money than in former years when the price of spirits was much higher. It was learned from the producers throughout the belt that a large cutting down of expenses, and probably the production, would take place and that the crop of 1913 would be produced at a less figure per barrel than for some years past.

The outlook at the opening of the year was for a decrease in the cutting of new boxes from the year before, and it was estimated that the decrease would be anywhere from 10 to 20 per cent., but this did not mean a corresponding decrease in the output, as the old boxes are largely depended upon.

About the middle of March or about the time the first of the new crop was commencing to reach the market the announcement of the American Naval Stores Company of its suspension shocked the entire trade. This large concern handled approximately 90 per cent. of the total product and with their withdrawal from the market the trade was entirely at sea as to the future course of the market. At first little effect was felt, the price of sprits going only to 36¾ cents, a drop of ¾ of a cent, and quickly rallied to higher levels, closing the old naval stores year at 42 cents. With rosins the break was sensational and this market failed to receive any effective support for some time, and receipts accumulated in the factor's hands until the unsold stocks had mounted very high. Early in the new season several of the largest factors attempted to hold their supplies for certain prices, but with the large amount of stuff the American Naval Stores Company was unloading in order to realize the cash necessary for satisfying its creditors, the receipts of the smaller factors were sufficient for the remaining buyers.

Early in the summer the American re-entered the market as a regular competitor for rosins and spirits and continued until its business was taken over by the Standard Naval Stores Company in the early fall of the year. In the meantime prices had been ruling at great reductions, such as the trade hardly anticipated ever seeing again in rosins. Spirits also obtained at unprofitable prices during the year, and the producers realizing the situation made efforts toward the curtailment of operations two months earlier than usual, but to what extent their appeal had is hard to arrive at, the movement failing to become unanimous.

With the closing of the American Naval Stores Company, for a long time the controling factor in the market, there have been a number of concerns to enter the field, all of which have been organized with large capital and maintaining their principle offices at Savannah.

Receipts of spirits of turpentine during the year 1913 were almost equal those of 1912, showing a slight increase, while with rosin a decrease is shown as compared with the year before.

The same was the case with shipments of spirits and rosin.

Receipts of spirits and rosin as compared with the year before are shown in the following:—

	Spirits.	Rosin.
1913	213,326	633,268
1912	212,877	742,754
Increase	449	.....
Decrease	.....	9,486

Shipments of spirits and rosin as compared with the year before are shown in the following:—

	Spirits.	Rosin.
1913	219,177	611,185
1912	211,093	730,921
Increase	8,084	.....
Decrease	.....	119,736

REVIEW OF THE YEAR IN TURPENTINE.

January opened with spirits of turpentine selling at 38¾ to 39 cents, the tendency being steadily upward during the month, closing at 41¾. This advance continued into February until shortly after the middle of the month 43½ cents was touched. At the close the market had relapsed to 42 cents.

In March the price ruled weak until on March 16 the price had reached 37½ cents. At this time the suspension of the American Naval Stores Company was announced, which had little effect, the price going only to 46¾ cents within the next few days, after which the market rallied to 43½ cents on moderate business, and closed the old season at 42 cents, which was 5 cents per gallon lower than the year before.

April opened with the market in a very dull condition and nothing was done during the first week. Then the market opened up, the price being established at 39½ cents, but little was done, the price shifting to 37 cents on heavier sales, closing the month at 36 cents.

The market was more or less active during May, the price fluctuating all during the month, reaching as high as 38¾ cents, but closed at 36½ cents, ½ cent higher than the month opened at. This declining tendency continued into a good part of June, the lowest level thus far, 35¼ cents being reached about the middle of the month. Toward the end of the month the market strengthened and closed at 36½ to 36¾ cents.

July opened with the price ruling firm at the closing figure of the previous month, but the tendency shortly afterwards seemed toward still lower levels, 35 cents being realized at the close of the month.

August opened with transactions at 35 cents and the next trading took place at a further decline in price of ¼ cent, 34¾ cents per gallon being the lowest for the year, August 4. After this a much better feeling prevailed, the trend of the market continuing upward, having advanced from 39 to 39¼ cents by the close of the month.

September opened unchanged. The price worked down and rallied again, reaching 40 to 40¼ cents, but again moved downward, closing at 38¼.

October opened up with a brighter aspect and on slightly diminishing receipts the price continued on an upward trend throughout the entire month, going as high as 42¼ cents, however, closing at a quarter of a cent on the gallon lower.

November saw a further advance, the highest price paid during this month being 44½ cents. The highest prices obtained for the article during the year ruled during the month of November, a gain in price of 9½ cents having been scored over the low price of August. The market, however, toward the end of the month weakened and continued declining into December, which month showed a falling off in price of ⅝ cent as compared with the previous month, the closing price being 42¾ cents, the same as the month opened.

The year 1913 closed showing a net advance in the price of spirits of turpentine of 4½ cents per gallon as compared with the price at the close of the year previously.

Highest, lowest and average prices of spirits of turpentine for each month during the year 1913, as compared with the same period of 1912:—

	1913			1912		
	High.	Low.	Avge.	High.	Low.	Avge.
Jan..	$0.41⅝	$0.38⅜	$0.4037	$0.51	$0.40¼	$0.4804
Feb..	.43	.41⅜	.4244	.47⅜	.46	.4685
Mar..	.43½	.36¾	.3974	.50⅛	.46⅜	.4538
April.	.42	.36	.3843	.49¾	.44½	.4559
May..	.38¾	.36¼	.3716	.49¼	.44⅝	.4677
June.	.36⅝	.35¼	.3598	.46¼	.44	.4464
July..	.36⅝	.35	.3575	.44⅜	.42⅝	.4350
Aug..	.39⅞	.34¾	.3704	.43⅝	.38⅜	.4050
Sept..	.40¼	.38¼	.3886	.38⅝	.37¼	.3838
Oct...	.42¼	.38¼	.4034	.41	.38⅞	.3890
Nov..	.44¼	.42¼	.4325	.38¾	.33⅞	.3698
Dec..	.43⅜	.42¼	.4260	.40¼	.34⅝	.3735
Year.	.44¼	.34¾	.3931	.51	.33⅞	.4257

ROSIN.

Rosins at the opening of the year were quoted as follows:—W. W., $7.45; W. G., $7.35; N, $7.25; M, $7; K, $6.25; I, $5.52½@5.55; H, $5.45@5.55; G, $5.45 @5.60; F, $5.40@5.55; E, $5.35@5.50; D, $5.30; B, $5.25. The prices showed a decline as compared with last year of 30 cents for W. W., 15 cents for W. G., 15 cents for N, 40 cents for M, $1.10 for K, $1.72½ for I, $1.75 for H, $1.72½ for G, $1.77½ for F, $1.80 for E, $1.72½ for D and $1.75 for B.

During January the market was very irregular, widely divergent views obtaining as to the relative value of the different grades. On the closing day of the month the bottom grade was quoted at the wide split of $4.95 to $6. The top grade was $7.80 and W. G. $7.15. The medium grades were very steady.

Irregularity continued into February, but as the month progressed the market developed general strength and prices generally advanced. Offerings of the high grades were light, but lower grades ruled stronger and at the end of the month the difference between the extremes was just $1.32½.

During the first part of March the market held very steady, but a sensational break in prices took place on the announcement of the suspension of the American Naval Stores Company. Pales, especially the top grade, held up relatively better, the loss being greatest in the grades I to E. Some reaction followed the drop, but the market remained unsettled, and continued with an absence of trading until the latter part of April, when on April 19 a small line was sold at prices cut from $1.05 to $1.50 per 280 pounds, but later in the month prices advanced 25 to 50 cents.

The market was very quiet during May, only occasional transactions taking place, the smaller factors only placing their receipts on the market, the larger ones holding off with the expectations of obtaining better prices later on. By the middle of the month prices had become better, about 5 to 10 cents, and later pales scored further advances of 15 to 25 cents.

In June the market opened rather dull, with no appearance of sales for several days. When trading commenced prices continued to break sharply, the market ending the month 45 to 95 cents lower, the heaviest declines taking place in the common grades. The market became more active during the first part of July and prices advanced, but weakened toward the close of the month, W. W. being the only grade to show an advance in value at the close, the remaining grades all showing decreased values.

August entered with the same irregularity as to prices; the pale and common grades inclined toward lower levels, while the middle grades showed a more stationary attitude. As the month was drawing to a close pales failed to improve any, the losses in these grades being 15 to 25 cents, while at the close of August all of the grades from M down had become higher in price over the previous month, B showing the greatest advance, which was 55 cents. The receipts of the darkest grades being in no large proportion.

September opened with the grades above I displaying little strength, while the grades I and below considerably weakened and continued downward with occasional reactions, which failed to hold at any length. The market at the close of this month reaching $3.50 for all grades, I and below, a decline of 45 to 50 cents. W. W. suffered 10 cents in price and the remaining grades, W. G. to K, inclusive remained the same. Prices at this time showed the greatest difference as compared with the previous year so far, viz:—W. W., $2.10; W. G., $2; N, $2.40; M, $2.20; K, $2.50; I, $3.07½; H, $3.05; G, $3.02½; F, $3; E, 2.95; D, $2.90 and B, $2.85.

Early in October the market showed some improvement, but soon fell back, B declining to $3.47½; however, prices picked up again later on, W. W. selling at $6.50 and closed at $6.35. The greatest gain in price during October was 35 cents for N. All other grades improved 10 to 25 cents. Receipts at this time were diminishing considerably, showing a decrease of 10,000 barrels for the month as against the month previously.

Prices became much better during November, a steady improvement taking place in grades I and above, the lower grades fluctuating during the month, closing with no changes as compared with the opening quotations, while in pales and mediums substantial gains were scored, 80@75c. for N and M, respectively, being the greatest.

There was a weakness prevailing in early December in commons, but the market reacted, better prices obtaining later in the month. Pales also held very firm, W. W. reaching $7, but shifted back to within 5c. of the opening price of that grade for the month. Advances all along the line at the close, as compared with the previous month, being 5 to 20 cents. Receipts for December were the largest of any month during the year, 72,181 barrels being received. This increase in receipts at the latter part of the year was due to stuff coming in that was being held back by some of the producers who were counting on better values later in the year.

In the following will be seen the closing prices for the year 1913, as compared with prices at the close of 1912 and 1911:—

Grade.	1913.	1912.	1911.
W. W.	$8.85 @—	$7.45 @—	$7.75 @—
W. G.	8.55 @—	7.35 @—	7.50 @—
N	8.35 @—	7.25 @—	7.40 @—
M	5.45 @5.55	7.00 @—	7.40 @—
K	4.35 @—	6.35 @—	7.35 @—
I	3.85 @3.95	5.65 @5.72½	7.20 @—
H	3.72½@3.77½	5.60 @5.72½	7.10 @7.12½
G	3.72½@3.75	5.60 @5.70	7.10 @7.12½
F	3.70 @3.72½	5.55 @5.65	7.07½@7.10
E	3.70 @3.72½	5.50 @5.55	7.02½@7.05
D	3.72½@—	5.50 @—	6.97½@7.00
B	3.72½@—	5.50 @—	6.92½@7.00

Highest and lowest prices of rosin for the year 1913, as compared with the year 1912:—

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.85	$6.10	$8.60	$6.65
W. G.	7.75	6.00	8.35	6.60
N	7.45	5.10	7.70	6.55
M	7.40	4.30	7.60	6.50
K	7.15	4.00	7.50	6.40
I	6.85	3.50	7.45	6.40
H	6.65	3.50	7.40	6.40
G	6.55	3.45	7.40	6.40
F	6.50	3.45	7.40	6.40
E	6.45	3.50	7.30	6.40
D	6.40	3.50	7.15	6.40
B	6.27½	3.45	7.15	6.40

The following are the highest and lowest prices of rosin for each month of 1913, as compared with each month of the previous year:—

JANUARY.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.80	$7.25	$7.80	$7.35
W. G.	7.35	7.20	7.60	7.35
N	7.25	7.15	7.50	7.25
M	7.15	6.95	7.45	7.20
K	6.75	6.25	7.37½	6.95
I	6.20	5.50	7.25	6.45
H	6.27½	5.40	7.20	6.45
G	6.25	5.40	7.20	6.45
F	6.20	5.32½	7.20	6.45
E	6.00	5.25	7.15	6.40
D	6.00	5.15	7.15	6.35
B	6.00	4.90	7.15	6.30

FEBRUARY.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.90	$7.15	$7.50	$7.35
W. G.	7.35	7.10	7.35	7.30
N	7.25	7.05	7.30	7.25
M	7.20	7.00	7.25	7.20
K	7.00	6.60	7.10	7.00
I	6.75	6.10	6.80	6.57½
H	6.60	6.05	6.77½	6.57½
G	6.50	6.00	6.75	6.57½
F	6.45	5.95	6.75	6.57½
E	6.42½	5.85	6.75	6.50
D	6.40	5.40	6.72½	6.45
B	6.27½	4.95	6.70	6.40

MARCH.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.85	$7.40	$7.75	$7.40
W. G.	7.75	7.00	7.70	7.30
N	7.45	6.75	7.65	7.30
M	7.40	6.50	7.60	7.25
K	7.15	6.25	7.30	7.00
I	6.85	5.20	7.15	6.80
H	6.65	5.15	7.15	6.72½
G	6.55	5.10	7.15	6.72½
F	6.50	5.00	7.15	6.72½
E	6.45	4.90	7.10	6.70
D	6.40	4.90	7.00	6.65
B	6.25	4.90	6.90	6.62½

APRIL.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.90	$6.25	$7.75	$6.65
W. G.	7.40	6.00	7.70	6.60
N	7.30	5.80	7.65	6.55
M	6.95	5.50	7.60	6.50
K	6.25	5.00	7.50	6.50
I	5.40	4.40	7.35	6.50
H	5.40	4.30	7.30	6.50
G	5.30	4.25	7.27½	6.50
F	5.25	4.20	7.27½	6.50
E	5.20	4.15	7.05	6.50
D	5.15	4.10	6.95	6.20
B	5.10	4.05	6.85	6.05

MAY.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.85	$6.50	$7.75	$6.90
W. G.	6.70	6.25	7.60	6.85
N	6.55	6.00	7.50	6.85
M	5.65	5.50	7.45	6.92½
K	5.20	5.00	7.45	6.90
I	4.90	4.80	7.40	6.80
H	4.80	4.70	7.40	6.77½
G	4.75	4.70	7.40	6.85
F	4.70	4.60	7.40	6.85
E	4.65	4.60	7.30	6.60
D	4.60	4.50	6.75	6.35
B	4.55	4.50	6.60	6.00

JUNE.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.85	$6.30	$7.65	$7.40
W. G.	6.70	6.25	7.55	7.40
N	6.55	5.85	7.50	7.40
M	5.65	5.15	7.45	7.30
K	5.20	4.55	7.45	7.20
I	4.90	4.15	7.45	7.05
H	4.80	4.00	7.40	7.05
G	4.75	4.00	7.40	7.05
F	4.70	4.00	7.40	7.05
E	4.65	4.00	6.90	6.70
D	4.60	3.90	6.60	6.30
B	4.55	3.60	6.35	5.85

JULY.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.50	$6.30	$7.75	$7.40
W. G.	6.35	6.22½	7.55	7.30
N	5.50	5.25	7.50	7.10
M	5.00	4.30	7.30	7.82½
K	4.80	4.00	7.20	6.75
I	4.75	3.90	7.10	6.70
H	4.70	3.80	7.05	6.70
G	4.65	3.80	7.05	6.70
F	4.60	3.80	7.02½	6.70
E	4.55	3.70	6.80	6.55
D	4.45	3.60	6.65	6.25
B	4.35	3.45	6.37½	5.65

AUGUST.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.45	$6.25	$8.10	$7.60
W. G.	6.20	6.00	7.75	7.25
N	5.30	5.10	7.35	7.00
M	4.45	4.30	7.15	6.80
K	4.20	3.90	7.00	6.60
I	4.05	3.85	6.90	6.55
H	4.05	3.80	6.82½	6.50
G	4.00	3.77½	6.80	6.45
F	4.00	3.75	6.75	6.45
E	4.00	3.70	6.65	6.40
D	4.00	3.55	6.55	6.35
B	4.00	3.45	6.40	6.25

SEPTEMBER.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.30	$6.10	$8.25	$8.15
W. G.	6.15	6.00	8.00	7.75
N	5.25	5.10	7.50	7.25
M	4.50	4.40	7.00	6.55
K	4.20	4.00	6.65	6.40
I	4.00	3.50	6.62½	6.40
H	3.95	3.50	6.62½	6.40
G	3.95	3.50	6.60	6.40
F	3.90	3.50	6.60	6.40
E	3.90	3.50	6.50	6.35
D	3.90	3.50	6.45	6.25
B	3.90	3.50	6.35	6.25

OCTOBER.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.50	$6.15	$8.55	$8.25
W. G.	6.25	6.00	8.35	8.00
N	5.45	5.10	7.70	7.50
M	4.55	4.30	7.65	6.60
K	4.25	4.10	6.70	6.32½
I	3.75	3.55	6.60	6.30
H	3.75	3.50	6.60	6.27½
G	3.75	3.45	6.60	6.25
F	3.75	3.45	6.60	6.25
E	3.75	3.50	6.50	6.20
D	3.75	3.50	6.45	6.15
B	3.75	3.47½	6.40	6.10

NOVEMBER.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$6.80	$6.50	$8.60	$7.45
W. G.	6.50	6.35	8.25	7.35
N	6.25	5.85	7.60	7.25
M	5.25	4.50	7.00	6.95
K	4.50	4.25	6.60	6.40
I	3.90	3.62½	6.35	5.72½
H	3.85	3.60	6.30	5.70
G	3.80	3.60	6.25	5.65
F	3.80	3.60	6.20	5.60
E	3.80	3.60	6.17½	5.70
D	3.80	3.60	6.15	5.67½
B	3.80	3.55	6.12½	5.65

DECEMBER.

	1913		1912	
Grade.	High.	Low.	High.	Low.
W. W.	$7.00	$6.75	$7.45	$7.45
W. G.	6.75	6.45	7.35	7.35
N	6.35	6.15	7.25	7.25
M	5.55	5.15	7.05	7.00
K	4.60	4.40	6.50	6.30
I	3.92½	3.65	6.20	5.40
H	3.90	3.55	6.15	5.40
G	3.75	3.55	6.15	5.40
F	3.72½	3.55	6.10	5.40
E	3.72½	3.55	6.05	5.40
D	3.75	3.55	6.10	5.40
B	3.75	3.55	6.10	5.40

Comparative statement of stocks on hand at the first of each month, receipts, shipments and stocks remaining, as compared with each month of the previous year:—

JANUARY.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	35,800	145,600	33,966	133,757
Receipts	11,455	58,476	8,921	51,626
Total supply.	47,255	204,076	42,887	185,383
Shipments	25,702	81,057	14,838	66,664
Stk. remaining	21,553	123,019	29,049	118,719

FEBRUARY.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	21,553	123,019	28,049	118,719
Receipts	5,366	25,763	4,658	26,576
Total supply.	26,919	148,782	32,707	145,289
Shipments	10,802	31,804	6,542	52,911
Stk. remaining	16,127	116,978	26,165	92,378

MARCH.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	17,177	116,978	26,165	92,378
Receipts	3,953	13,845	3,578	17,503
To agree with stock	....	3,000	....	....
Total supply.	21,130	133,823	29,703	109,971
Shipments	6,197	42,617	13,139	37,764
Stk. remaining	14,933	91,206	16,573	72,207

APRIL.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	14,933	91,206	16,573	72,207
Receipts	13,772	36,180	8,011	57,151
Total supply.	28,705	127,386	27,457	104,985
Shipments	10,917	79,580	8,011	57,151
Stk. remaining	17,788	47,806	19,446	47,814

MAY.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	17,788	47,806	19,446	47,814
Receipts	27,899	67,081	27,809	70,945
Total supply.	45,597	114,887	47,255	118,759
Shipments	22,799	27,259	20,499	52,243
Stk. remaining	22,798	87,628	26,756	66,516

JUNE.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	22,798	87,628	26,756	66,516
Receipts	26,137	60,009	25,394	73,995
Total supply.	48,935	147,637	52,150	140,511
Shipments	22,464	25,031	21,165	57,486
Stk. remaining	26,471	122,606	30,985	83,025

JULY.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	26,471	122,606	30,985	83,025
Receipts	30,694	65,651	29,751	99,946
Total supply.	57,165	188,257	60,736	273,971
Shipments	27,813	24,270	25,593	69,875
Stk. remaining	29,352	163,987	35,143	104,096

AUGUST.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	29,352	163,987	35,143	104,096
Receipts	24,461	61,068	27,162	85,538
Total supply.	53,813	225,055	62,305	189,634
Shipments	24,538	52,925	25,453	91,240
Stk. remaining	29,275	172,130	36,852	98,394

SEPTEMBER.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	29,275	172,130	36,852	98,394
Receipts	20,713	60,272	19,816	62,956
Total supply.	49,988	232,402	56,668	161,350
Shipments	24,861	67,419	20,614	62,647
Stk. remaining	25,127	164,983	36,054	98,703

OCTOBER.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	25,127	164,983	36,054	98,703
Receipts	16,235	50,078	18,886	66,169
Total supply.	41,362	215,061	54,940	164,872
Shipments	10,221	60,431	24,343	54,404
Stk. remaining	31,141	154,630	30,597	110,468

NOVEMBER.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stck on 1st...	31,141	154,630	30,597	110,468
Receipts	17,156	60,164	20,263	84,202
Total supply.	48,277	214,794	50,860	194,670
Shipments	14,858	64,923	13,147	45,592
Stk. remaining	33,419	149,871	37,713	149,078

DECEMBER.

	1913		1912	
	Spirits.	Rosin.	Spirits.	Rosin.
Stock on 1st...	33,419	149,871	37,713	149,078
Receipts	15,595	72,181	15,795	79,456
Total supply.	49,014	222,052	53,508	228,534
Shipments	19,065	54,369	17,708	82,934
Stk. remaining	29,949	167,683	35,800	145,600

LONDON NAVAL STORES MARKET.

The year 1913 will be memorable for the upheaval in the trade due to the liquidation of the American Naval Stores Company, by far the largest distributing agency thereof. On the

whole the markets have borne this great shock very well, owing to the pluck with which the difficult situation was grappled by the factors and exporters in America last August. The London market has become the key of the turpentine situation, owing to the huge stocks which have accumulated here.

It is noteworthy that the closing price in London is about the highest of the year, nearly 20 per cent. dearer than that of last August. Another point of interest is the very large export from the United States to Rotterdam, the deliveries at that port exceeding those of London for 1913. These deliveries are for the most part directed via the Rhine to Germany. Antwerp and Rotterdam competes for this trade. Antwerp publishes no statistics, but it is known that she has imported less than usual in 1913; nevertheless the German depots must be amply stocked just now.

The increased exports from France are also worthy of attention; at one time the heavy accumulations in France, due to the poor exports of 1912, were offered at prices which compared very favorably with American quotations on the British markets. The price at Bordeaux, however, has lately advanced above import limit as far as Great Britain is concerned.

American wood turpentine, which has been mercilessly slaughtered in Great Britain during 1913, shows signs of revival at the close. Prices have advanced fully 5s. per cwt. above the knockout quotations of last summer.

Rosins have felt the effects of the American liquidation much more seriously than turpentine, especially the darker grades. As to the pale grades of American rosin, huge quantities were thrown on the European markets early in the year, but at present they are utterly neglected, being so very much dearer than French and Spanish of like quality: 9s. 9d., the price of strained rosin in London on the 31st of December, is far above the average price of the last 13 years. It would have been deemed an extravagant price at any time between 1870 and 1905.

LOWEST AND HIGHEST PRICES FOR TURPENTINE IN LONDON FROM 1910 TO 1913, INCLUSIVE.

	1910—		1911—	
	Low.	High.	Low.	High.
	s. d.	s. d.	s. d.	s. d.
January	40 6	41 3	56 0	57 9
February	41 0	42 9	63 3	74 3
March	41 6	42 9	63 3	74 3
April	42 0	44 0	62 0	71 0
May	42 9	44 9	46 0	64 0
June	42 6	44 9	43 0	48 0
July	45 0	50 6	37 6	39 0
August	48 9	51 6	36 6	39 9
September	51 3	54 6	35 0	39 4½
October	53 3	56 0	35 0	38 3
November	54 0	55 9	33 9	35 9
December	53 3	56 0	35 9	37 6

	1912—		1913—	
	Low.	High.	Low.	High.
	s. d.	s. d.	s. d.	s. d.
January	33 6	37 6	31 3	32 3
February	33 6	35 9	31 6	32 6
March	34 3	35 9	27 0	31 4½
April	33 9	36 10½	28 3	29 6
May	34 6	37 0	28 4½	29 6
June	34 3	35 10½	27 6	28 4½
July	33 6	34 3	27 4½	28 3
August	30 3	33 3	27 3	30 4½
September	30 3	31 3	29 6	30 6
October	29 9	31 6	29 9	31 10½
November	27 9	30 6	31 6	32 7½
December	27 7½	31 9	31 9	32 6

AVERAGE PRICE OF AMERICAN TURPENTINE IN LONDON.

	s. d.		s. d.
1908	31 9	1911	47 9
1909	33 11	1912	33 1
1910	47 8	1913	30 1

TOTAL EXPORTS FROM FRANCE.

[In tons of 1,000 kilos.]

1908	9,212	1911	10,210
1909	9,220	1912	7,936
1910	10,054	1913*	10,300

* Eleven months.

TOTAL EXPORTS FROM UNITED STATES.

(N. B.—The American crop year begins April 1 and ends March 31. Three hundred and twenty American gallons calculated as one English ton, equal to 1,016 kilos.]

1908-09	61,093	1911-12	58,986
1909-10	46,747	1912-13	63,957
1910-11	44,825	1913*	41,898

* April to October, seven months.

ANALYSES OF THE IMPORTS INTO GREAT BRITAIN FROM ALL COUNTRIES.

[In tons of 1,016 kilos.]

From—	1910.	1911.	1912.	1913.
United States	18,264	18,181	*28,757	*23,859
Spain and Portugal	339	269	899	1,683
France	1,138	1,183	313	295
Russia, Scandinavia, etc.	3,777	4,344	2,798	1,769
All other foreign countries	94	38	44	450
Totals	23,612	24,006	32,811	28,017
Percentage from—				
United States	77.35	75.73	87.64	85.62
France	4.82	4.93	2.74	6.00
Russia	16.00	18.10	8.53	6.32
All other countries	1.83	1.24	1.09	2.06

* Including wood turpentine in 1912 and 1913.

STOCKS OF TURPENTINE IN LONDON AT END OF EACH YEAR.

	1910.	1911.	1912.	1913.
American ....bbls.	20,488	24,686	*47,300	*56,253
French	2,559	1,569	2,028	4,224
Spanish	956	276	377	374
	24,003	26,531	49,705	60,851
Afloat	2,100	14,188	5,050	4,000
Totals	26,103	40,719	54,755	64,851
	s. d.	s. d.	s. d.	s. d.
Price in London	56 9	37 4½	31 9	32 6
Price in Savannah	77c	50¼c	39c	42¾c

* These figures do not include stock of wood turpentine in London.

Rosins.

As indicated above rosin was much more concerned by the failure of the American Naval Stores Company than was turpentine. F. rosin declined from $5.95 on March 14 to $3.75 at the end of the year, but W. W. showed a smaller falling away, viz., from $7.85 to $6.85. Present price of dark grades of rosin are, however, above the average of the past ten years. The high level of values ruling for dark grades since 1905 has been prejudicial to their industrial use, and having regard since potentialities of their employment, the lower market may induce expansion in the demand for these sorts.

AVERAGE MONTHLY QUOTATIONS OF STRAINED ROSIN.

[Price per cwt., equal to 50¾ kilos, ex wharf, London.]

	1909.	1910.	1911.	1912.	1913.
	s. d.	s. d.	s. d.	s. d.	s. d.
Jan.	8 3	10 4	15 9	17 1½	14 7½
Feb.	8 4½	10 9	17 3	16 9	15 10
March	7 10½	10 7½	18 9	16 9	14 3
April	8 0	10 9	19 3	17 0	12 8
May	8 1½	11 0	17 3	16 6	11 9
June	7 9	12 0	16 0	16 6	11 1½
July	8 0	14 0	14 6	15 10½	10 11
Aug.	8 4½	14 6	14 7½	16 5	10 6
Sept.	9 4½	14 9	15 6	16 6	10 3½
Oct.	10 2	15 1	15 6	16 4½	9 4½
Nov.	10 1½	14 9	15 4½	15 9	9 7½
Dec.	10 0	14 8	16 1½	15 2	9 9
Year	8 8	12 9	16 4	16 6	11 9

EXPORTS OF ROSIN FROM FRANCE.

[In tons of 1,000 kilos.]

1908	49,230	1911	57,719
1909	57,234	1912	70,038
1910	55,751	1913*	39,715

* Eleven months.

TOTAL EXPORTS FROM UNITED STATES.

[In tons of 2,240 pounds, equal to 1,016 kilos, net weight.]

[N. B.—The American crop year begins April 1 and ends March 31.]

1908-09	229,336	1911-12	253,916
1909-10	209,934	1912-13	253,072
1910-11	225,624	1913*	163,125

* Seven months, April to October.

ANALYSES OF THE IMPORTS INTO GREAT BRITAIN, FROM ALL SOURCES.

[In tons of 2,240 pounds, equal to 1,016 kilos.]

From—	1909.	1910.	1911.	1912.	1913.
U. States	50,310	48,381	50,089	50,763	68,6..
France	14,610	16,987	13,250	17,742	9,672
Spain and Portugal	5,298	8,160	8,644	10,091	8,350
All other countries	781	1,503	2,288	3,473	3,230
Totals	70,999	75,031	74,271	82,069	87,903
Percentage from—					
U. States	70.86	64.48	67.44	61.85	75.82
France	20.58	22.64	17.84	21.62	11.00
Other countries	8.56	12.88	14.72	16.53	13.18

	Total imports of rosin to United Kingdom. Tons.	Average price of strained rosin for the year. s. d.
1903	84,538	6 1
1904	90,402	7 11
1905	80,531	9 1
1906	82,536	10 0
1907	82,808	10 5
1908	82,126	8 4
1909	70,999	8 8
1910	75,031	12 9
1911	74,271	16 4
1912	82,069	16 6
1913	87,903	11 9

BORDEAUX NAVAL STORES MARKET.

The price of spirits of turpentine which, during 1911, was as low as 62 francs per 100 kilos, could not go much higher during this year, and has been lower and lower many weeks, as will be seen by the official course of our market:—

January 8	64	July 8	52
January 15	65	July 15	52
January 22	65	July 22	52
January 29	28	July 29	52
February 5	65	August 6	52
February 12	66	August 13	52
February 19	67	August 20	50
February 26	67	August 27	45
March 5	65	September 3	56
March 12	63	September 10	56
March 19	59	September 17	55
March 26	62	September 24	54
April 2	60	October 1	54
April 9	59	October 8	54
April 16	59	October 15	54
April 23	59	October 22	57
April 31	59	October 29	59
May 7	59	November 5	61
May 14	59	November 12	61
May 21	59	November 19	62
May 28	59	November 26	63
June 4	58	December 3	61
June 11	57	December 10	62
June 18	56	December 17	62
June 25	54	December 24	63
July 1	53	December 31	64

During the first three months of 1913 the price was stationary at 65 francs, but in April, May, June it fell to 58; in July and August, months of largest production, there has been a great fall and 52 was quoted. November and December saw a revival and prices steadied at 62 and 63 francs. Finally the market closed at 64.

The highest price quoted had been in February, 67, and remained at this figure two weeks only; the lowest, 52, was the official quotation during six weeks in July and August. The average price for the year has been 59 francs, against 72 in 1912, 98.50 in 1911, and 109.50 in 1910.

The low level of prices is in consequence of Balkan wars, which rendered situation very difficult all the year.

Production has been very normal owing to favorable weather in September; consumption larger than formerly owing to cheaper prices, which facilitated the use of turpentine in many industries utilizing various substitutes, absorbed oil stocks and a large part of the crop 1912-13.

The year 1913 has not been profitable for the producers, for raw materials fluctuated between 23 and 24 centimes per kilo instead of 36 in 1912; that's a difference of 12 centimes or thereabout 30 per cent.

Exporters have not been in a brightful situation, the fall prohibited transactions many times.

Stocks in hand are for the present of no importance and it seems probable they will hardly satisfy to the want of consumption till the new crop.

Very likely prices will go up despite of large quantities of American spirit in our continent for exportation has been important.

Upon the whole the situation is rather good.

Following are exportations for the eleven months of 1913, 10,400 tons; all the year 1912, 7,300; 1911, 10,200, which represents an advance of 3,000 centimes, December excepted.

DRY PRODUCTS.—Characteristic of 1913 has been the fall of French rosins (chiefly low grades) occasioned by American quotations, a long continued recession in prices. The liquidation of the American Naval Stores Company was the starting point of this movement, stocks visible at this movement being of really its large importance.

Fine qualities have not been so affected as the ordinary for production of the first has been a little checked by the bad weather.

For the present an important stock of J. H. to F. E. is in France, but pale grades are very scarce. W. W., W. A., N. are not abundant at all, never before such a scarcity as was experienced at this time.

American rosins are very abundant and it is difficult to say what will happen; logically we can hope that, I, with little stocks of superior grades, their prices will not go down; II, with the big difference (a normal) between C. W. W., W. W., W. U. and F. G. F., the last one will raise sensibly and diminish this difference.

Unfortunately, logic is not always justified by events.

Our market will follow American fluctuations and if F. G. N. American actually at $3.75, while W. W. is quoted $6.85, are going up, our qualities F. G. H. will surely follow this movement.

In 1913 our rosin were quoted as follows:—

	Jan., francs.	April, francs.	Aug., francs.	Nov., francs.
Extra	42@40	38@35	35@33	39@33
W. W., W. W., N.	39@38	34@32	30@28	32@28
M, K, J	37@36	31@26	27@24	27@24
B, G, F, E	35@34	28@26	23@22	23@21

All per 100 kilos, net, f. o. b. Bordeaux, in casks of about eight hundredweigh, 7 per cent. tare.

Exportations were:—

	Tons.
1913, eleven months	40,000
1912, all the year	67,000
1911, all the year	58,000

That's a difficience of 27,000 tons. Of course, this year will show exportations lesser than 1912 of about 25,000 tons.

Stocks, in consequence, are larger, but are constituted in a large part with common and low grades.

Petroleum Industry Review

Production.

State.	1913. Barrels.	1912. Barrels.
California	99,000,000	86,450,767
Oklahoma	62,500,000	51,427,071
Illinois	22,000,000	28,601,398
Texas	14,000,000	11,735,057
Louisiana	12,000,000	9,263,439
West Virginia	11,000,000	12,128,962
Ohio	8,000,000	8,969,007
Pennsylvania	7,000,000	7,837,948
Wyoming	3,000,000	1,572,306
Kansas	2,500,000	1,592,793
Indiana	900,000	970,069
New York	800,000	874,128
Kentucky	500,000	484,368
Colorado	200,000	206,052
Other States	100,000	.....
Totals	243,500,000	222,113,218

1913 Field Operations.

	New daily production. bbls.	Completions.	Dry holes.	Gas wells.
Pennsylvania	4,129	9,962	308	517
West Virginia	2,072	34,287	453	329
Ohio	3,150	26,588	683	357
Indiana	310	7,361	12	86
Kentucky	211	2,320	74	3
Illinois	1,748	48,661	278	32
Texas-Louisiana	2,044	292,291	699	87
Okla.-Kansas	11,494	293,085	1,628	1,007
California	538	.....	...	...

In the above tables are summarized the general results of 1913 operations in the leading petroleum fields of the country. The production figures are based on the latest returns from the United States Geological Survey, supplemented by the data furnished by the Reporter's field correspondents. Details of field operations are compiled from our correspondent's reports. The substantial increase in the output last year represents the growing supremacy of the country's industry and the creditable comparison is all the more marked on account of the declining tendency of some of the leading foreign fields. Development work in this country was undoubtedly stimulated to a large extent by the strengthening course of crude values and the generally improving trend of market developments. The particularly sharp advances in the products of the high-grade Eastern fields early in the year may have been the means of preventing a further decline in the sections which have been subjected to steady drilling for half a century. It is significant that the heavy gain in our 1913 production has come from the fields yielding the lower gravity grades and in this respect the record of California stands to impressive advantage. Approximately a total of 100,000,000 barrels California is well in the lead, but the year's gain of about 9,000,000 barrels has been more than met by the expansion of the markets for the oil, so that a proposal for curtailed drilling which had been agitated on the fear of overproduction was without effect and at the close of the year a more confident sentiment characterized the situation. The prospects for steadily growing transportation requirements of fuel oil for the navy as well as for general land and water carrier service constitute one of the most encouraging features of the industry. The development of the refining business in California was a notable feature of last year, as 65 per cent. of the total State's production was of a character suitable for the more valuable derivatives. The withdrawal from the market for crude below 18 degrees of a leading refining company exercised a disturbance upon the operations in the lower grade fields and signified the shutting down of about 1,500 producing wells with a total daily output of 20,000 barrels over the last three months, but late in the year the unfavorable influence was removed and the successful treatment of the heavy oils for a greater proportionate distillation of the more valuable products created an increasing demand for the crude and on the freer general buying the market scored an advance of 5c. to 35c. As against a production of 99,000,000 barrels in California last year, the consumption reached the impressive total of 97,000,000. Storage stocks increased from 46,698,054 to 48,297,879 barrels, but reserve supplies below 50,000,000 barrels are not considered as of menacing significance, owing to the peculiar conditions of marketing the oil. A shortage in tank vessels operated as a handicap upon the movement but this condition will be relieved by new vessels. At the close of the year there were 5,700 producing wells in the State, as compared with 5916 at the close of 1919. Last year there were more than thirty wells starting at over 1,000 barrels a day, while the banner completion was a strike in the Sunset Midway field coming in at the rate of 20,000 barrels a day. Other developments of particular interest in California last years were the strengthening position of foreign concerns by the acquisition of extensive producing territory and the passage of the common carrier pipe line bill.

Last year marked a period of stirring and noteworthy achievements in the mid-continent field, embracing Oklahoma and Kansas. The field retained second place in the country's producing ranks, with a total of 65,746,859 barrels, as compared with 53,607,472 barrels in 1912. Not only was 1913 a record producing year, but it was credited with a larger number of new wells, a greater revenue and the marketing of more oil than any of its predecessors, as against a gain of more than 12,000,000 barrels in the output, the year's stocks showed an increase of scarcely 5,000,000 barrels from 37,907,447 to 42,854,172 barrels. There were 11,494 wells drilled in the mid-continent field last year, representing about one fifth of the total of 53,412 wells. Of the new wells, 78 per cent., or 8,859, were producers with a daily aggregate of 293,085 barrels. It was the year of most active wildcatting drilling in the history of the field and the results of these operations were, on the whole, creditable when it is considered that of the total completives in 1913 only 14 per cent. was the extent of failures. The big development of the year was the Cushing pool, which at the close registered over 900 wells and the prospect of a rich Bartlesville pay sand gave impetus to keener drilling late in the year. The Boston pool was discovered and after a flurry of interest went to pieces upon a daily output of 20,000 barrels. In Kansas prospecting returned to many localities which had been temporarily abandoned when the Glenn pool attracted all available capital to Oklahoma. During last year the high prices asked for favorable locations in Oklahoma reacted in favor of Kansas. The phenominal bonuses obtained in auctioning leases on Osage Indian lands showed the high value of Oklahomo lands. Besides satisfactory development of the new Cushing and Cleveland pools, interesting prospects for new pools have been found at Newkirk, Wann and Healdton.

The high-grade Pennsylvania fields managed to hold third place in the country's production last year, although increasing their output to an almost negligible extent, from 26,019,004 to 26,112,180 barrels. The sensational advances early in the year from $2 to $2.50 in the first descriptions were calculated to encourage new drilling and to result in a cleaning out of many old wells, which had been permitted to lie idle while the crude market had remained at an unattractive level. Wildcat drilling was prosecuted for a considerable time with the liveliest interest particularly in West Virginia, which was believed to hold the keenest encouragement for successful strikes. The Blue Creek pool of Kanawha County, which had been developed to

such stirring attainments in 1912, was the spur to greatest zeal in test operations last year, but nothing approaching this pool was exploited. The nearest development to a gusher pool was in the Sardis district of Harrison county. Roane and Ritchie contributed to check the expected decline due to the slump in the Blue Creek output. In New York and Pennsylvania great efforts were made to increase production by new drilling, and more especially by cleaning out old wells. No great success was obtained, and the usual decline resulted. A deep test boring at Derrick City, near Bradford, Pa., was carried to 5,673 feet with the hope of finding oil in the Medina sands. This boring is being continued. Eastern Ohio was actively drilled with fair results, and in the Ohio River region an interesting innovation in handling old wells gave promise of very beneficial conservatism of old oil fields in the future. Compressed air was forced into the nearly exhausted oil bearing sands through a well situated centrally in a group of old wells and the increase in yield was marked. The most creditable results were attained in the deep sand territory.

Despite the marked gain in new wells in the Pennsylvania fields last year, from 5,227 to 8,044, the new production fell from 136,001 to 56,643 barrels, making the average capacity per oil well 9.57 barrels in 1913, as compared with 36.72 barrels in 1912.

In connection with the Pennsylvania fields it will be of timely interest to treat the remaining fields within the eastern classification. The 1913 output of the Lima fields of northwestern Ohio and Indiana fell slightly below that of the former year by 4,488,618 against 4,761,050 barrels. The decline would have been more marked but for the development of the Shelburn pool of Sullivan County, Indiana, which constituted the only important feature of the section during the year. Completions in the Lima fields in 1913 numbered 1,280, as compared with 639 for 1912, and there was an increase in new production last year from 8,331 to 18,740 barrels. The average capacity per oil well differed slightly, 17.26 barrels in 1913 and 15.23 barrels in 1912. Kentucky presented a more favorable showing last year, increasing its production from 484,368 to 522,552 barrels. The possibilities of finding oil in the western part of the state aroused principal interest among operators.

Illinois, which held third place in the 1912 record of production, fell to fourth rank in the 1913 column. Last year's output amounted to 22,512,522 barrels, as against 28,601,308 barrels in 1912 and marked the lowest point since the State attained its petroleum importance in 1907. With the rapid decline in the established fields and the stiffining tendency of crude values, wildcat operations attracted the keenest attention, but their results were generally disappointing and comparatively little is left for promising exploitation outside of the defined sections. There is, however, encouragement for the deeper development of the proven area. Lawrence county has furnished the greatest hopes in this direction. The numerous pools in the county show good staying qualities and may be able to check the downward course of the State's production. Illinois completions for 1913 were 1,793, of which 1,483 were oil wells with a daily total of 46,663 barrels, an average of 31.47 barrels, as compared with 65.97 barrels in 1912, during which 1,276 wells were completed, of which 996 werecredited with a daily production of 65,666 barrels.

The Louisiana-Texas fields rose to third rank in the 1913 production column with a total of 26,000,000 barrels, or about 5,000,000 barrels over the 1912 output. In Louisiana many large wells, difficult of control, were obtained in the Caddo region, including Mooringsport. The product was irregular, but showed an increase. In the Gulf region the product declined. The Electra and other fields in Northern Texas continued to increase, and the decline in the Gulf region was slight. Much wildcatting was in progress at many points over the State. Chief interest centered in a new development at Moran, in Shackelford county. In the entire section 2,044 new wells were drilled during the year, of which 1,348 were oil, with a daily production of 292,291 barrels. Of the oil wells 401 came in for more than 100 barrels each, with a daily total of 251,668 barrels, an average of 629 barrels each. The Panhandle-Texas region furnished the greatest number of new wells, 768, but Louisiana led in new production, 148,605 barrels.

Of the remaining fields Wyoming has shown the most important development during 1913. The year's production is estimated at 2,354,000 barrels, as against 1,572,306 barrels in 1912. Activity in the Salt Creek and other oil fields, inspired by the sensational success of the Midwest Oil Company, has been the occasion for this increase. The close of the year found the oil boom growing and a prospect existing that in 1914 the oil output will be doubled. Of the total oil production during 1913 of 2,354,000 barrels of refined oil products, 2,111,000 barrels are credited to the Salt Creek field, near Casper; 110,000 barrels to the Big Horn county fields, 80,000 barrels to the Lander fields, $50,000 barrels to the Uinta county fields and 3,000 barrels to the Converse county fields. At the end of the year drilling for oil and gas was in progress in 16 of the 21 counties of the State. The importance of the Wyoming petroleum production has been recognized by the erection of new refineries and marketing facilities in the State.

CRUDE MARKET.

Developments in the crude market were probably the most spectacular during the opening weeks of the year since the periods of radical fluctuations incidental to the speculative operations on the oil exchanges during the early stages. It was in the higher grades of Pennsylvania oil that the sharpest realizations were scored. From $2 at the opening to $2.40 at the close of January was the range of enhancement, but the sensational course of the market can be appreciated when it is known that over the last five days of the month there were five successive advances of 7c. each. By the first week of February a $2.50 level had been reached, the highest point since April, 1895, when a brief exchange flurry carried the extremity to $2.69, the first time the $2 limit had been surpassed since 1877. The secondary varities scored almost as material an appreciation as the dearer grades during the early bull movement.

The increasing competition on the part of refining interests to secure supplies of crude yielding in greatest proportions the most valuable products was apparently the most closely related factor for the sharp uplift. The premium was calculated to mark a check to the declining tendency of production throughout the Pennsylvania fields, not only by putting into service many of the small pumping wells which the owners had been indifferent to operate while the crude market had remained at a relatively low level, but also as a spur to developments designed to extend producing limits of the established fields, and to exploit districts which had not been subjected to determining tests.

The net changes in all fields are summarized in the following table:—

PRICES OF PETROLEUM IN THE UNITED STATES AT THE BEGINNING AND THE CLOSE OF 1913.

Kind of oil.	Price per bbl. Beginning of 1913.	Close of 1913.
Pennsylvania grade	$2.00	$2.50
Cabell, Pa.	1.60	2.07
Mercer, Pa., black	1.53	2.00
New Castle, Pa.	1.53	2.00
Corning, Pa.	1.53	2.00
Wooster, Ohio	1.53	1.91
North Lima, Ohio	1.25	1.49
South Lima, Ohio	1.20	1.44
Princeton, Ind.	1.08	1.35
Somerset, Ky., 32 deg. B. and over	1.15	1.35
Ragland, Ky.	.65	.70
Illinois	1.08	1.45
Kansas and Oklahoma	.83	1.03
Corsicana, Tex., light	.88	1.05
Corsicana, Tex., heavy	.70	.80
Electra, Tex.	.88	1.03
Henrietta, Tex.	.88	1.05
Caddo, La., 38 deg. B. and over	.91	1.05
Caddo, La., heavy	.60	.75
Humble, Tex.	.75	.90
Saratoga, Tex.	.75	.90
Sour Lake, Tex.	.75	.90
Spindletop, Tex.	.80	.95
Batson, Tex.	.75	.90
California:—		
Coalinga, light	.65	..
Coalinga, heavy	.35	.40
Kern county, light	.65	.40
Kern county, heavy	.35	.40
Santa Maria, light	.70	1.00
Santa Maria, heavy	.40	.40
Los Angeles, light	1.00	.80
Los Angeles, heavy	.70	.60
Fullerton and Whittier, light	1.00	.60
Fullerton and Whittier, heavy	.70	..
Canadian oil	1.65	.60

From the above table it will be noted that the upward movement taking its greatest impetus in the high grade Pennsylvania oils affected practically every variety subject to regular market posting. Even the Mid-continent and California fields in which the only detracting element of threatening overproduction entered, have shared in the more favorable tendencies. The strengthening of Pennsylvania oils has set a general pace for the other grades and may be regarded as a barometer for the general movement. The following table gives the changes in the high grade Pennsylvania oils for 1913:—

PENNSYLVANIA.

January 1	$2.00	January 30	$2.33
January 6	2.05	January 31	2.40
January 27	2.12½	February 4	2.47
January 28	2.19	February 5	2.50
January 29	2.26		

The movement in other descriptions is summarized as follows:—

CABELL, PA.

January 1	$1.60	January 29	$1.86
January 6	1.65	January 30	1.93
January 27	1.72	January 31	2.00
January 28	1.79	February 4	2.07

MERCER, PA., BLACK.

January 1	$1.53	January 29	$1.79
January 6	1.58	January 30	1.86
January 27	1.65	January 31	1.93
January 28	1.72	February 4	2.00

NEWCASTLE, PA.

January 1	$1.53	January 29	$1.79
January 6	1.58	January 30	1.86
January 27	1.65	January 31	1.93
January 28	1.72	February 4	2.00

CORNING, PA.

January 1	$1.53	January 29	$1.79
January 6	1.58	January 30	1.86
January 27	1.65	January 31	1.93
January 28	1.72	February 4	2.00

WOOSTER, OHIO.

January 1	$1.53	January 30	$1.79
January 7	1.58	January 31	1.86
January 27	1.65	April 15	1.91
January 29	1.72		

NORTH LIMA, OHIO.

January 1	$1.25	February 4	$1.34
January 3	1.28	February 6	1.37
January 27	1.31	April 15	1.39

SOUTH LIMA, OHIO, AND INDIANA.

January 1	$1.20	February 6	$1.32
January 3	1.23	April 15	1.34
January 27	1.26	November 5	1.44
February	1.29	November 21	1.49

PRINCETON, IND.

January 1	$1.08	February 6	$1.20
January 3	1.11	February 20	1.25
January 27	1.14	April 15	1.30
February 1	1.17	November 5	1.35

SOMERSET, KY.

January 1	$1.15	January 29	$1.32
January 6	1.20	February 4	1.35
January 27	1.25	November 5	1.35
January 28	1.30		

RAGLAND, KY.

January 1	$0.65	January 29	$0.70
January 27	.68		

ILLINOIS.

January 1	$1.08	February 20	$1.25
January 3	1.11	April 15	1.30
January 27	1.14	November 5	1.35
February 1	1.17	November 19	1.40
February 6	1.20	November 21	1.45

KANSAS AND OKLAHOMA.

January 1	$0.83	July 7	$0.93
January 27	.86	July 21	.98
January 29	.88	August 19	1.03

CORSICANA, TEX.

	Light.		Heavy.
January 1	$0.88	January 1	$0.70
January 9	.90	April 7	.80
January 29	.95		
July 24	1.00		
August 25	1.05		

ELECTRA AND HENRYETTA, TEXAS.

January 1	$0.88	July 24	$1.00
January 9	.90	August 25	1.05
January 29	.95		

CADDO, LA.

	38° and over.	35°	32°	Heavy.
January 1	$0.91	$0.81	$0.76	$0.70
January 7	.94	.84	.79	..
February 1	.98	.88	.83	.75
July 10	1.00	.90	.85	.75

REFINED PRODUCTS.

Illuminating Oil.

The local market was subjected to comparatively few price developments during the year and the only featuring changes were in the export schedule. The market, on the whole, failed to reflect a seemingly proportionate measure of the sharp advances in the high grade crude oils early in the year as the only change over the first four months was an advance on January 10 of 25 points in case refined to 10.80c. for 110 test and 11.80c. for 150 test. Bulk and barrels remained at 4.80@5.80c. and 8.50@9.50c., respectively. The forced production of kerosene incidental to the distillation of crude for the eagerly sought grades of refined for motor consumption was a factor that operated to check the full effect of the crude strengthening upon the market for kerosene There had been more or less of a restriction upon the export movement during the early part of the year owing to the unusual premium on tonnage rates, but this handicap promised to be relieved within the near future. The next change in export quotations for illuminating oil was on May 14, when a general advance of 20 points became effective. Contributing to the influence of the crude situation was the expansion of the foreign demand, as the season was advantageous for long-distance shipments on the practice of carrying heavier quantities in storage to anticipate increased consumption. The market followed a nominally steady tendency for about five months without quotable change, the continued firm position of crude operating to counterbalance the seasonable decline in consumption. On October 23 prices were established at a 25 point advance for bulk and cases and at a 5 point advance for barrels, 5.25c. for bulk, 8.75c. for barrels and 11.25c. for cases, 110 test, with 150 test commanding the usual 1c. premium. The question of increased cost of containers was believed to have entered most materially into the change in kerosene, as there had been no particular indications of an unusual export movement and there had been no new developments in the crude market to reflect directly upon refined. No further changes featured the illuminating product over the balance of the year. The proposal of the German government to adopt a measure, designed to regulate the sale of kerosene oil in the empire with the effort of dislodging a leading American company which after years of hard efforts and heavy expense had established the sale of oil to the best possible advantage of the German consuming interests, has undergone no material development during the year. The bill is still in the hands of a Reichstag committee, but its promoters are believed to be as determined as ever in its adoption and it is none the less threatening in its character and effect. Our illuminating oils have retained their prestige in the foreign markets and with comparatively small prospects for any substantial movement in the domestic consumption, refiners have given renewed attention to the expansion of the fields abroad to cover the growing production. The indications are regarded as favorable, not only for enlarging the established fields, but also for the building up of new markets for American kerosene. Details of exports are published in another column.

The following summary represents the high and low quotations by months for standard and water white refined per gallon for export from New York, bulk, barrels and cases, cargo lots:—

STANDARD WHITE (110 TEST).

	Bulk— High.	Bulk— Low.	Barrels.— High.	Barrels.— Low.	Cases— High.	Cases— Low.
Jan.	4.80	4.80	8.50	8.50	10.80	10.55
Feb.	4.80	4.80	8.50	8.50	10.80	10.55
March.	4.80	4.80	8.50	8.50	10.80	10.80
April.	4.80	4.80	8.50	8.50	10.80	10.80
May.	5.00	4.80	8.70	8.50	11.00	10.80
June.	5.00	5.00	8.70	8.70	11.00	11.00
July.	5.00	5.00	8.70	8.70	11.00	11.00
Aug.	5.00	5.00	8.70	8.70	11.00	11.00
Sept.	5.00	5.00	8.70	8.70	11.00	11.00
Oct.	5.25	5.00	8.75	8.70	11.25	11.00
Nov.	5.25	5.25	8.75	8.75	11.25	11.25
Dec.	5.25	5.25	8.75	8.75	11.25	11.25

WATER WHITE (150 TEST).

	Bulk— High.	Bulk— Low.	Barrels.— High.	Barrels.— Low.	Cases— High.	Cases— Low.
Jan.	5.80	5.80	9.50	9.50	11.80	11.55
Feb.	5.80	5.80	9.50	9.50	11.80	11.80
March.	5.80	5.80	9.50	9.50	11.80	11.80
April.	5.80	5.80	9.50	9.50	11.80	11.80
May.	6.00	5.80	9.70	9.50	12.00	11.80
June.	6.00	6.00	9.70	9.70	12.00	12.00
July.	6.00	6.00	9.70	9.70	12.00	12.00
Aug.	6.00	6.00	9.70	9.70	12.00	12.00
Sept.	6.00	6.00	9.70	9.70	12.00	12.00
Oct.	6.25	6.00	9.75	9.70	12.25	12.00
Nov.	6.25	6.25	9.75	9.75	12.25	12.25
Dec.	6.25	6.25	9.75	9.75	12.25	12.25

The local jobbing market for illuminating oil remained stationary in the face of the sharp advances in crude early in the year as supplies of the refined product at a relatively low cost were well sufficient to meet all possible requirements even during the more active consuming season. The first and only change of the year was a decline of ½c. in barrel lots on August 29 to 11½c. for 130 test and to 12c. for 150 test. This move was based on revisions in container prices and was without particular market significance. Quotations for tank wagon deliveries ruled unaltered throughout the year at 8½c. for 130 test and 9c. for 150 test. The consumption of the product for illuminating purposes in the country is steadily being encroached upon by the more modern methods. There have been promises that the field of consumption was more capable of enlargement in connection with the more volatile derivatives for internal combustion engines, but the threatened tightening of the gasoline stringency has been partly relieved through other means.

Naphthas, Gasoline, Etc.

The more volatile petroleum products, especially those for gas engine consumption, were subjected to important developments during the last year, of which the most striking has been the marked advance in the methods of relieving the pressure on supplies, which, during the last few years had been experienced by the outstripping of production by consumption. The agitation for a substitute for gasoline had been most keenly fostered by the sharp appreciation of values in 1912, both in this country and abroad, and through these methods the threatened shortage of supplies has been shorn of its disturbing effects. In England probably the most successful method of substitution has been attained in a product known as motor spirits, a gas derivative which has enabled the country to cut off a material part of the usual imported varieties. In this country a measure of relief has come from the successful treatment of crude oil whereby the breaking up of the hydrocarbons has been carried to a finer degree, yielding the more desirable combinations and working a more economic balance in the general yield of distillates. The volatile product has found a ready market, principally for the heavier types of vehicles. For popular use it may not be so desirable, bearing a slightly pungent odor and having a trace of yellow from which the regular gasoline has been free. The production of casing—head gasoline has been further encouraged during the year and this has contributed to relieving the pressure on the usual distillate. The product made from the condensation of gas has been freely taken within the local radii of production, but so far as can be traced it has played no appreciable part so far as the local market is concerned. The application of kerosene to motor carburetion has not as yet attained any notable success for general purposes, but with other methods of relieving the natural gasoline stringency, there has not been the same incentive to continue the kerosene experiments.

The local market for the naphtha products reflected the stirring developments in the crude situation early in the year and by the close of January nearly all of the varieties were established at an advance. Of first consideration will be the course of the products in the export schedule. On January 7 all grades were marked up ½c. in all styles of containers and eleven days later a further cut was added to 68@72 and 73@76 degrees. A general advance of ½c. featured the market on March 17, representing the last bullish development of the year. There was nothing to suggest any setback while the market continued as an even basis over the next three months, and the announcement of a ½c. decline in all styles of containers, except 10 gallon drums, on June 19 came as a general surprise. It marked the first decline in export values for more than two years and the most tangible basis upon which the change could be justified was in the record of foreign shipments indicating a loss, which was seemingly due to the growing use of substitutes abroad. The next three months the market followed practically even lines, but on September 19 an-

other cut of ½c., affecting all grades and containers, was announced. The easier position was readily associated with the slackening of foreign requirements on the more determined attitude of leading consuming interests abroad to commercialize a motor fuel in place of the costly naphtha or gasoline. It was claimed that fully 40,000,000 gallons of British motor spirits would be available annually from a commodity produced in enormous quantities in Great Britain and a combination of motor organizations was in force to push the substitute. The only other change in the naphtha export schedule over the balance of the year was a decline of 1c. in 68@72 degree auto naphtha on December 24. This as a relatively costly product and had been especially affected by the foreign substitution practices, opening and closing export quotations for the different naphtha products in the various containers are shown as follows:—

OPENING.

	10-gal. drums—Under 100 cases.	10-gal. drums—100 cases and over.	100-gal. drums.*
Benzine, 59@62 deg..	24¾	24¼	15¼
Gasoline, stove.....	27½	27	18
Naphthas—			
Auto, 68@72 deg...	30	29½	20½
73@76 deg.....	33	32½	23½

*Drums extra, $8.50.

	In cans and cases—Under 100.	100-199	200-299.
Benzine, 59@62 deg..	20¾	20	19¾
Gasoline, stove.....	23	22¾	22½
Naphthas—			
Auto, 68@72 deg...	25½	25¼	25
73@76 deg.....	28½	28¼	28

CLOSING.

	10-gal. drums—Under 100 cases.	10-gal. drums—100 cases and over.	100-gal. drums.*
Benzine, 59@62 deg..	25¼	24¾	15¼
Gasoline, stove.....	28	27½	18
Naphthas—			
Auto, 68@72 deg...	30½	30	20½
73@76 deg.....	34½	34	24½

*Drums extra, $8.50.

	In cans and cases—Under 100.	100-199.	200-299.
Benzine, 59@62 deg..	20¼	20	19¾
Gasoline, stove.....	23	22¾	22½
Naphthas—			
Auto, 68@72 deg...	25½	25¼	25
73@76 deg.....	29½	29¼	29

The net changes signify advances in benzine stove gasoline, auto naphtha in 10-gallon drums over and under 100 cases, and 75@76 degrees auto naphtha in 100-gallon drums, as well as in the last named variety in cans and cases below 100 and to 300. Benzine stove gasoline and 68@72 degree auto naphtha in 10-gallon drums and in cans and cases closed on the same basis as prevailed at the opening of the year.

In the domestic schedule advances of 1c. in auto naphtha in steel barrels, in 86, 74@76, 70@72 and 68@70 degree products, and of 1¼c. in auto naphtha in wooden barrels and stove gasoline followed the first flurry in crude; the only variety not being affected was v. m. & p. naphtha. Before the close of January 86 degree gasoline scored a further appreciation of 1½c. V. m. & p. naphtha responded to the strengthening influences by an advance of 1c. on February 3. These were the only favorable developments of the year, and nothing further of material interest was noted until a decline of ¼c. in 74@76, 70@72 and 68@70 degree gasoline on August 29. The setback was based entirely on corresponding revises in the cost of containers. The demand was of active seasonable proportions, but there was apparently no difficulty in meeting requirements.

A more significant change was a decline of 1c. on November 5 in auto naphtha in both steel and wooden barrels, which was accounted for by the gradual lessening of the range between production and consumption, as the season did not exert so heavy a tax on refiners. There was a decline of 1c. in the v. m. & p. product in September on the quieter state of the market. Opening and closing quotations for the year follow:—

	Opening.	Closing.
Naphtha, auto (garages only), steel barrels.....		16
Naphtha, auto, wooden barrels.	19¾	20
Naphtha, V. M. & P. deod....	17	17
Gasoline, 86 deg.....	27	29½
74@76 deg.....	24	25
68@70 deg.....	21	22
70@72 deg.....	22	23
stove	19¾	21

Lubricating Oils.

The local market for the lubricating products, as a rule, is not so susceptible to fluctuations as the other refined varieties, as the lubricating oil schedule is more complex, involving greater trouble in the adjustment of trade conditions to new prices. But with the high grade crude oils commanding sharply increased values early in the year, the paraffin lubricating products were advanced 1c. on January 16, establishing them at the following basis:—

Paraffine, high viscosity.....	27	@28
903@907 specific gravity.....	16	@16½
903 specific gravity.....	15	@15½
885 specific gravity.....	13	@13½
875 specific gravity.....	12½	@13
865 specific gravity.....	12	@12½
red paraffine.....	15	@16

There was no further change over the balance of the year in these descriptions, but the strongly sustained market for the paran crude oils exerted a full maintenance of values. Other varieties of lubricating oil followed a practically even basis throughout the year, being less sensitive to bearish developments than the parafin grades. While competition assumed keener effect during the summer and fall months on the slackening of consumption, with intimations of shading practices on the part of refiners, there were no departures from the general range of quotations. The following table gives prices for other than the paraffin lubricating oils over the year:—

Black reduced, 29 gravity, 25@30 cold test.....	gal.	13½@14
29 gravity, 15 cold test.....	14	@ 14½
summer	13	@13½
Cylinder, light filtered.....	21½@33	
r fr a rah t h th t h ta ra ra r m h m hr fr dark filtered.....	18	@26
extra cold test.....	27	@34
dark steam refined.....	14½@25	
Natural, West Virginia, 29 gravity.	23	@23½
Natural, filtered lemon, 33@34 gravity	19	@20
white, 33@34 gravity.....	27	@30
32@34 gravity, bloomless.....	18	@19
31 gravity, wool grade.....	16	@16½
Spindle, No. 200.....	18	@18
No. 100.....	17	@18
No. 110.....	16	@17
No. 90.....	14	@15
filtered.....	21	@22
Russian engine, pale, No. 1.....	21	@22

EXPORTS.

The foreign markets for our petroleum products have in the aggregate been broadened on an impressive scale, and last year's trade has been established on record proportions, both as to volume and value returns. The value gain has been the distinctive feature of the 1913 movement, outstripping in every instance the volume increases, and in the case of the lubricating products, where a volume loss is registered, the value showing more than compensated for the setback. There can be no question that our foreign petroleum trade has never been subjected to such severe tests as were experienced during last year. Sensational advances in the higher grades of crude the first few weeks brought the refined products to generally higher levels, a realization that it calculated to prompt a tempering effect upon consumption as well as to encourage practices of substitution. Competing products have been able to encroach upon the regular fields to an appreciable extent in apparently but one respect, which development we shall treat in connection with the naphthas.

Crude.

Despite the premium on the basic material for domestic requirements during 1913, the foreign fields have been broadened to the extent of 184,991,667 gallons ($8,174,767), as against 172,822,223 gallons ($6,373,771) for 1912. The value gain is far in excess of the volume growth by 28.26 against 7.04 per cent. On the 1911-1912 comparison there was a loss of 6.56 per cent. in volume, but a gain of 10.06 per cent. in value. Crude oil exports for 1913 represent 8.78 per cent. of the general volume and 5.56 per cent. of the total value, while their 1914 relation stood 9.36 and 5.22 per cent., respectively.

Details of monthly shipments of crude follow:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January	16,067,942	18,477,067	15,538,443
February ...	7,836,140	11,919,577	9,359,157
March	12,398,395	11,651,834	15,081,725
April	19,556,528	19,148,825	20,826,481
May	14,151,753	14,557,401	19,763,811
June	15,934,135	16,456,799	18,573,781
July	21,121,289	20,848,092	23,507,797
August.....	12,698,504	14,944,119	16,287,155
September ..	22,166,772	17,801,961	14,884,375
October	23,268,187	16,212,012	15,187,779
November ..	17,771,228	18,173,044	16,266,331
December...	18,872,482	8,487,989	9,232,799
Totals	201,843,335	188,711,420	194,469,634
Average	16,820,280	15,725,952	16,205,803
Total val...	$6,165,403	$6,770,484	$8,448,294

The distribution of crude oil exports by countries for the last three years follows:—

	1911. Gallons.	1912. Gallons	1913. Gallons.
Crude (including all natural oils without regard to gravity)—			
France	27,235,037	28,541,644	35,346,430
Spain	10,270,365	11,468,548	13,146,969
Other Europe..	2,199,908	2,905,167	4,331,672
Canada	66,896,266	97,450,636	102,518,018
Panama	36,843,880	10,043,500	1,060
Mexico	22,611,875	19,135,187	15,047,008
Cuba	6,759,323	4,016,707	5,322,111
Chile	19,454,000	6,048,119	4,116,500
Other countries	9,662,671	9,101,925	14,639,836
Totals	201,843,335	188,711,420	194,469,634
Values	6,165,403	6,770,484	8,448,294

Illuminating Oil.

Of the refined products, first consideration is due to illuminating oil, representing more than one-half of the general volume aggregate, and nearly the same proportion of the value total. Foreign requirements of illuminating oil last year attained 1,117,996,475 gallons ($72,135,201), comparing with 1,023,681,414 gallons ($61,918,491) in 1912, and 1,108,333,605 gallons ($60,857,290) in 1911. Not only has the 1913 volume offset the unfavorable comparison of the 1912-1911 statistics, but it has restored the prestige of what may be regarded as the mainstay of the export business in the face of marked value increment. On the basis of 1913-1912 figures are recorded gains of 9.21 per cent. in volume and of 16.50 per cent. in value, as against a loss of 7.64 per cent. in volume and an increase of 1.74 per cent in value in the 1912-1911 relations. The illuminating oil exports comprised 53.08 per cent. in volume and 49.12 per cent. in value of the total returns, while the previous comparison noted proportions of 55.50 and 50.80 per cent., respectively.

Details of the shipments by months for the last three years follow:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January..	64,373,587	72,749,982	91,196,073
February.	86,760,031	65,172,572	69,363,445
March....	101,203,206	73,118,157	72,348,604
April.....	93,810,690	85,592,547	79,671,187
May.....	100,606,810	108,758,460	90,177,245
June.....	102,420,736	77,827,676	100,938,406
July.....	111,119,039	97,712,558	99,721,404
August...	101,763,597	83,395,617	101,831,978
September	106,301,973	106,331,238	101,356,019
October...	90,097,693	75,802,461	116,909,200
November	68,156,620	100,060,784	84,792,214
December.	85,672,015	81,681,700	120,143,748
Totals..	1,112,295,006	1,026,138,239	1,119,441,243
Average .	82,601,251	85,511,520	93,286,770
Total val.	$61,055,095	$62,084,022	$72,042,107

The distribution of illuminating oil exports by countries for the last three years follows:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
Illuminating oil—			
Belgium ..	53,519,674	54,465,219	58,811,242
Denmark ..	23,988,224	28,338,609	32,718,266
France	39,648,623	48,743,073	57,449,319
Germany ..	122,333,079	109,408,080	86,118,348
Italy	20,831,893	28,165,188	31,456,805
Netherl'ds	116,413,389	121,407,435	155,496,882
Sweden	24,062,322	24,345,598	30,388,385
United Kingdom.	166,935,516	163,766,578	187,828,433
Other Europe	28,228,573	32,268,217	33,218,422
Canada	13,835,775	18,104,134	17,400,187
Cuba	540,224	1,493,665	2,515,079
Other West Indies and Bermuda.	6,066,049	6,630,090	6,446,464
Argentina..	22,088,305	25,751,042	21,464,883
Brazil	28,326,311	34,729,845	37,072,920
Chile	6,771,036	8,643,712	7,431,072
Other South America..	10,291,589	12,107,304	14,235,408
China	100,770,779	57,052,159	83,791,429
Brit. India	69,765,850	39,924,051	32,298,848
Dutch East Indies	15,177,500	12,553,313	17,739,623
Hong Kong	18,089,920	5,853,820	15,868,771
Japan	97,661,576	92,785,477	81,202,309
British Oceania.	34,050,287	28,038,855	28,688,925
Philippine Islands	11,653,570	12,634,519	12,091,810
Br. Africa.	13,728,175	15,007,295	15,730,204
Other countries	62,516,686	45,919,361	51,985,068
Totals..	1,112,295,006	1,026,138,239	1,119,441,243
Values ..	$61,055,095	$62,084,022	$72,042,107

Lubricating Oil.

There was a decline in the volume of lubricating oil exports from 213,559,784 to 205,825,151 gallons, or 3.62 per cent., although the value returns show an increase from $27,860,743 to $29,289,705, or 5.13 per cent. The 1911 exports amounted to 181,250,004 gallons ($22,977,857), so that the 1912 trade signified a gain of 17.80 per cent. in volume and 21.25 per cent. in value. The lubricating products represent by 9.77 per cent. of the general volume of petroleum exports, but in value relation they stand much higher, 19.98 per cent. On the 1912 basis they constituted 11.58 per cent. of the volume and 22.86 per cent. of the value total.

Details of monthly shipments for the last three years follow:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January	12,340,275	16,181,945	18,979,259
February	14,391,984	14,584,833	17,884,350
March	17,134,225	17,645,796	21,673,926
April	17,382,337	21,893,787	18,481,532
May	12,802,488	22,065,515	16,049,357
June	15,757,158	16,272,311	12,827,888
July	12,851,462	16,844,575	14,130,258
August.....	12,590,103	11,094,083	16,011,805
September ..	19,316,736	16,529,451	17,701,786
October	14,216,597	19,567,501	18,353,284
November ..	15,940,240	19,129,963	16,542,191
December ..	18,022,040	16,604,593	19,000,396
Totals	183,319,645	216,393,206	207,639,092
Average	15,276,637	18,032,767	17,303,238
Total val...	$23,337,126	$28,297,467	$29,608,549

The distribution of lubricating oil exports by countries for the last three years follows:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
Belgium	11,257,798	12,623,117	12,712,689
France	20,949,694	30,662,203	22,197,986
Germany	21,272,119	25,604,704	26,480,507
Italy	8,251,097	10,006,484	6,685,584
Netherlands ..	12,663,446	11,149,768	11,303,761
United King..	56,387,567	63,494,046	61,556,210
Other Europe..	11,117,601	11,810,342	13,972,065
Canada	5,436,754	7,681,965	7,968,968
Mexico	1,336,741	811,240	982,447
Cuba	1,266,724	1,630,628	1,770,777
Argentina	4,719,263	5,574,156	4,418,826
Brazil	2,140,712	3,098,837	3,545,157
Chile	1,518,453	2,032,874	1,817,488
British East Indies	8,196,746	10,005,040	10,762,594
Japan	2,930,122	3,344,160	3,725,578
British Oceania	4,649,710	5,253,774	5,395,865
British Africa	1,760,411	2,018,281	2,468,310
Other countries	8,484,087	9,391,497	9,914,292
Totals	183,319,645	216,393,206	207,639,092
Values	$23,337,126	$28,297,467	$29,608,549

Naphthas.

The products of the naphtha grouping, including gasoline, benzine and the other light distillates, do not appear to the same advantage in the comparison of exports for 1913 and 1912 as was noted in the relation between the 1912 and 1911 figures. It is gratifying, however, that the forward movement was not checked last year, although the margin in its favor was barely one per cent., the increase being from 175,089,771 to 176,878,845 gallons. The value comparison puts the 1913 record on a more creditable basis, with the advantage of 37.38 per cent., representing the expansion from $19,364,032 to $26,601,488. A material part of the shrinkage in volume may be reasonably attributed to the sharp advances during 1912, a good part of the appreciation being maintained last year. The increased values afforded the keenest incentive to the development of products designed to enter into practical competition for motor fuel consumption at substantial saving. In England the greatest strides toward effective substitution appear to have been reached, although for certain forms of gas engines the lighter distillates have held a fairly steadfast position. The general export movement of the naphthas during 1912 attained an unusually favorable record, being measured by a gain of 33.36 per cent. in volume and of 76.23 per cent. in value. In their relation to the general 1913 petroleum exports the naphthas stood 8.40 per cent. in volume and 18.09 per cent. in value, as compared with 9.49 and 15.89 per cent. in the 1912 trade.

Details of the monthly shipments follow:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January...	3,207,987	9,198,330	7,385,115
February..	6,569,958	6,693,868	13,582,677
March.....	7,420,736	9,265,158	14,718,541
April.....	12,207,263	16,985,183	23,064,418
May.....	15,759,654	27,699,856	18,846,518
June.....	14,563,400	26,330,282	13,430,446
July.....	12,934,578	17,990,475	15,851,732
August....	16,217,330	22,256,978	16,461,703
September.	12,927,279	15,972,625	21,316,334
October....	16,961,436	10,176,042	20,792,355
November..	11,913,090	14,778,873	11,845,237
December..	6,611,955	11,350,828	10,794,809
Totals..	137,294,606	186,060,094	187,057,107
Average..	11,441,217	15,500,008	15,588,092
Total val.	$11,482,761	$20,459,378	$28,092,580

The distribution of naphtha exports by countries for 1913 follows:—

	Gallons.	Values.
Refined or manufactured—Gasoline.		
Belgium	2,457,790	$276,200
Netherlands	6,694,189	905,616
Other Europe.....	35,392,011	4,618,833
Canada	37,509,535	5,019,305
Argentina	10,815,565	1,879,715
Brazil	11,227,999	2,024,938
British Oceania.....	4,650,154	966,316
Other countries.....	8,981,043	1,727,854
Totals	117,728,286	17,418,777

Residuum Products.

The marked expansion in exports of the heavy residuum products, which featured the 1912 record, has characterized last year's returns, with volume and value gains within closer relationship than those previously noted. The 1913 statistics show 420,467,121 gallons ($10,846,026), as against 258,392,044 gallons ($6,357,951) for 1912, marking a volume increase of 62.10 per cent. While the volume growth for 1912 was much larger, 98.95 per cent., the value expansion was slightly less, 68.55 per cent. The residuum products stand second to illuminating oil in the volume proportion to the general exports, to the extent of 19.96 per cent., while in value they represent 7.30 per cent. Their relative position in 1912 was 4.62 per cent. in volume and 5.22 per cent. in value.

Monthly shipments of residuum are shown in the following table:—

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January...	13,444,121	15,581,885	35,071,396
February...	6,422,316	12,246,806	18,836,928
March.....	15,248,597	10,573,536	25,112,909
April.....	11,257,676	21,596,096	29,465,037
May.....	7,308,286	22,655,677	30,014,219
June.....	8,547,690	10,972,227	39,873,065
July.....	12,857,040	32,770,374	32,474,144
August.....	18,544,559	26,920,429	31,988,451
September.	8,342,316	26,061,176	36,861,106
October....	10,172,067	27,108,447	47,716,421
November..	13,479,298	28,839,802	42,091,705
December..	8,754,421	27,934,460	57,330,856
Totals..	133,979,087	266,236,068	426,858,645
Average..	11,164,924	22,186,412	35,571,553
Total val.	$3,882,463	$6,599,031	$11,124,879

The general volume of petroleum exports in 1913 reached 2,106,159,259 gallons, valued at $147,047,187, as against 1,844,545,236 gallons ($121,874,988) in 1912, and 1,736,230,014 gallons ($104,386,320) in 1911. On the basis of the last two years' returns we find a growth of 14.18 per cent. in volume, and of 20.65 per cent. in value. A comparison of the 1912 and 1911 statistics noted a volume gain of 6.24 per cent. and a value appreciation of 16.75 per cent., so that last year's expansion is indicated to most substantial effect.

In the following table are given the general totals of exports of petroleum products for the last three years:—

TOTAL EXPORTS OF CRUDE AND PRODUCTS.

	1911. Gallons.	1912. Gallons.	1913. Gallons.
January..	109,457,912	132,189,299	168,170,268
February.	121,980,429	110,618,086	129,026,557
March....	153,465,159	122,254,481	148,935,705
April.....	154,214,494	163,216,438	171,498,655
May.....	150,629,691	195,734,909	174,851,170
June.....	157,232,119	147,859,275	185,643,586
July.....	170,863,408	186,168,074	176,885,535
August....	161,404,093	166,617,226	182,584,132
September	169,055,076	182,896,451	191,555,641
October...	154,715,980	148,864,918	219,474,738
November.	127,260,425	181,012,466	171,537,678
December.	138,532,913	146,059,579	216,502,608
Totals ..	1,768,731,699	1,883,479,897	2,136,465,721
Average.	147,394,308	156,956,658	178,038,813
Total val	$105,922,848	$124,210,382	$149,316,409

EASTERN PETROLEUM REVIEW.

The year 1913 goes down in history as one of the most prosperous years yet known to the petroleum industry. This is not so of the high grade fields east of the Mississippi River alone, but in the mid-continent, Texas, Louisiana and Texas fields as well, while California experienced one of its great seasons. The Wyoming country came forward with a heavy year and bids fair to outstrip its record during 1914.

In the high grade fields east of the Mississippi River during the year of 1913 there was a total of 11,760 wells finished. Of this number 1,970 were dry holes and 1,154 were gas wells, leaving a total of 8,636 oil producing wells with a new production of 126,514 barrels, or an average per well of about 14¾ barrels, considered a fine record when it is known that most of the production came from wells where drilling has been going on for a great

many years, and in supposed exhausted territory, as nothing new of any great value was found in the way of productive sections in any of the fields for the year. The old Pennsylvania-Southern New York field holds the larger number of finished wells for the year with West Virginia in second place closely followed by Southern Ohio and Illinois.

The wells for the year in the high grade country were by fields as follows:—

Field.	Comp.	Prod.	Gas.	Dry.
Pennsylvania	4,257	9,093	306	518
West Virginia	2,072	34,407	443	329
S. E. Ohio	1,715	13,263	50	478
Kentucky	211	2,320	7	70
Central Ohio	474	2,243	290	122
N. W. Ohio	973	11,106	8	89
Indiana	310	7,361	12	85
Illinois	1,784	46,661	32	278
Totals	11,769	126,514	1,154	1,970
Okla.-Kansas	11,261	354,280	932	1,580
Panhandle-Texas	769	51,452	9	184
Gulf Coast	728	92,056	10	306
Louisiana	541	157,355	68	100
Grand total	25,050	781,657	2,173	4,140

The above figures in the fields east of the Rocky Mountains shows a grand total of 25,050 wells finished to say nothing about the large number of wells drilled in Wyoming, Colorado, New Mexico, Alabama, South Dakota, Iowa, Utah, Montana, Michigan along with California, which would swell the number close to 5,000 wells which would bring the number close to 30,000 wells to be drilled in one single year. This is a fact but it can hardly be realized, as the industry has grown in about half a century to such enormous proportion. The drilling industry is a hazardous trade, still it is not so bad as the mining industry, for when one paying mine is found there are thousands of petroleum wells and the investments while heavy are more sure than is mining. It would be hard to estimate the amount of capital invested in the industry, which would take the wells, equipments, storage tanks, pipe lines, telegraph lines, refineries, gas lines, etc., as all go in line.

The runs and deliveries from the high grade petroleum fields are hard to designate correctly, hence the total production for all fields are given wherever there are pipe lines to handle the product. In the runs under Pennsylvania grades there is included the production of Southern New York, Pennsylvania, West Virginia and Southeastern Ohio. The Lima-Indiana field includes the production from both States combined. The total production shows that 243,348,861 barrels of oil were produced during the year 1913 which is some over twenty million more barrels than for 1912. During 1913 the various States were as follows:—

State.	Runs, barrels.
Pennsylvania grades	26,109,180
Lima-Indiana	4,488,618
Kentucky	522,552
Illinois	22,512,522
Oklahoma-Kansas	64,787,596
Gulf Coast	5,863,302
Panhandle-Texas	8,186,698
Louisiana	10,137,289
California	97,588,104
Wyoming	3,000,000
Colorado	250,000
Total	243,348,861

In the Illinois field the Ohio Oil Co.'s runs amounted to some over 19,000,000 barrels, and other lines taking the balance. The Ohio's stocks or deliveries amounted to 14,941,754 barrels, the other lines handling all their products as the oil was run.

In the Illinois field at the start of 1913 there were 11,134,332 barrels of crude in stock, while at the close of the year the stocks had dwindled to 5,613,373 barrels.

In the Northwestern Ohio field at the close of 1912 the stocks were 3,291,256 barrels and at the close of 1913 they were 2,177,747 barrels.

In the Indiana field at the close of 1912 the stocks of crude amounted to 963,306 barrels, and at the close of 1913 were 965,099 barrels, there being but a slight difference.

In the Kentucky field at the close of 1912 the stocks of crude were 129,225 barrels, and at the close of 1913 were 85,107 barrels.

The stocks in the Pennsylvania grade fields were also drawn up, and the stocks in all fields show less for 1913 than at the close of 1912, which indicates the great demand for the product during the past twelve months.

Pennsylvania Fields.

No new pools of any significance were found in the Pennsylvania-Southern New York fields during the year 1913, as the work was mostly confined to the old territory that has been drilled over and over again for many years. In some instances small average was added to the old fields but the wells in a majority were very light pumpers. The Clarion-Venango sections show nearly as many wells as some of the leading oil States which indicate the trade has lasting faith in the old stripper wells. No big wells were found that are considered in the gusher class for many years. The wells in Pennsylvania for the year were by districts as follows:—

District.	Comp.	Prod.	Gas.	Dry.
Clarion-Venango	1,578	2,344	83	138
Bradford	757	1,788	48	29
Allegheny	510	817	43	24
Armstrong-Butler	498	1,490	33	111
S. W. Pa.	477	2,097	81	150
Middle	437	627	17	66
Totals	4,257	9,093	306	518

The above wells were drilled by months for 1913 as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	205	406	27	25
February	186	395	27	28
March	268	741	28	36
April	330	678	31	48
May	304	739	23	37
June	440	1,063	15	48
July	429	833	23	51
August	429	886	26	57
September	417	830	25	56
October	432	891	30	45
November	404	869	28	37
December	353	802	23	50
Totals	4,257	9,093	306	518

West Virginia Fields.

For more than a year West Virginia operators have had a fruitless vigil for the discovery of a petroleum pool of appreciable dimensions. Hundreds of wildcat wells have been sunk, and many more are being drilled, but still the result has been a succession of failures. The southwestern counties of the Little Mountain State hold out more inducement than any other portion and it is in this particular direction that the guns of the oil men are being pointed for wildcat work in 1914. The year 1913 has been a very mysterious one to the oil trade, for it is really the first year that the trade has been unable to open up a new productive pool, and were it not for the Big Sandy district where gushers were found galore and the Spencer district, in Roane county, there would have been nothing in sight. These two productive fields have now seen their day and late wells are very light. At the beginning of 1913 the Elk, Big Sandy and other districts in Kanawha County, were the most promising, but while many gushers were found no extensions were made to speak of. During the year a producing well above the average was found on the Wells tract, in the Beech Bottom pool, in the Buffalo district, of Brooke county, but when the drill became active no more wells of the same calibre were encountered and none has been found since. It only took a few months to define the Beech Bottom pool, as gas wells were drilled on all sides of the producing wells.

During 1913 a total of 2,072 wells were finished in West Virginia, of which 329 went in the duster list and 443 were gas, leaving 1,300 oil wells with a production of 34,407 barrels. These wells were drilled by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	157	3,259	44	21
February	158	3,951	33	26
March	158	2,986	38	30
April	177	3,907	39	24
May	164	2,252	35	25
June	202	5,090	30	33
July	164	1,828	33	30
August	175	2,475	32	28
September	174	2,226	30	31
October	187	2,452	45	28
November	174	1,785	33	26
December	182	2,243	44	27
Totals	2,072	34,407	443	329

While no new and prolific pool's were found in West Virginia during the year the State had a good quota of wells in the gusher class, as a well that will produce 100 barrels or better a day is considered a gusher in any field. The gushers are herewith listed by months, which is an interesting record of the field, with the production for the first production.

The more important wells were distributed by counties and months as follows:—

BROOKE COUNTY.

July—Horseshoe Oil Co., 100 barrels; Rockledge Oil Co., 100 barrels. August—Rockledge Oil Co., 200 and 100 barrels. September—Horseshoe Oil Co., three for 100 barrels each and 200 barrels. October—Rockledge Oil Co., 200 barrels; Horseshoe Oil Co., 120 barrels; Barnsdall & Hays, two for 125 barrels each. November—Rockledge Oil Co., 100 barrels; Barnsdall & Hays, 120 and 110 barrels.

KANAWHA COUNTY.

January—South Penn Co. 60 and 150 barrels; O'Connor Oil Co., 315 barrels. February—South Penn Co., 450 barrels; O'Connell Oil Co., 250 barrels; Falling Rock Cannel Coal Co., 400 and 600 barrels. March—South Penn Co., 440 and 315 barrels; United Fuel Gas Co., 114 barrels; J. N. Carnes, 160 barrels; O'Connell Oil Co., 450 barrels; Blue Creek Development Co., 200 barrels. April—Ohio Fuel Oil Co., 175 barrels; South Penn Co., two for 500 barrels each and 250 and 125 barrels; Falling Rock Cannel Coal Co., 600, 200 and 250 barrels. May—Ohio Fuel Oil Co., 100 and 175 barrels; South Penn Co., 900 barrels; United Fuel Gas Co., 200 barrels; O'Connell Oil Co., 445 and 250 barrels. June—Ohio Fuel Oil Co., 150 barrels; South Penn Co., 900, 750, 500, 120 and 100 barrels; O'Connell Oil Co., 500 barrels; Falling Rock Cannel Coal Co., 175 and 125 barrels. July—Falling Rock Cannel Coal Co., 195 barrels; South Penn Co., 300 and 125 barrels. August—South Penn Co., 500 and two for 300 barrels and 915 barrels; Falling Rock Cannel Coal Co., 125 barrels. September—Falling Rock Cannel Coal Co., 240 barrels; Ohio Fuel Oil Co., 100 barrels; South Penn Co., 550 barrels. October—South Penn Co. 520, two for 100 barrels each. November—South Penn Co., 250 and 100 barrels; O'Connell Oil Co. 150 barrels. December—South Penn, 200 and 100 barrels.

MARION COUNTY.

January—Moosehead Oil & Gas Co., 100 barrels. February—Hope Gas Co., 250 barrels; Wells Oil Co., 100 barrels; Philadelphia Co., 900, 150, 100 and 150 barrels. March—Philadelphia Co., 800 barrels. April—W. B. Maxwell, 190 barrels; Big Elk Oil Co., 100 barrels; Crude Oil Co., 100 barrels; Hope Gas Co., 100 barrels; Fleming & Co., 115 barrels; Philadelphia Co., 100 and 200 barrels. May—Hope Brothers, 100 barrels; Hope Gas Co., 100 barrels; South Penn Co., 150 barrels. June—W. B. Maxwell, 100 barrels and 200 barrels; South Penn Co., two for 150 barrels, 100 barrels. August—Hope Gas Co., 100 barrels; W. B. Maxwell, 125 barrels. September—Hope Gas Co., two for 500 barrels; C. B. Fleming, 150 barrels. October—Tidewater Oil Co., 100 barrels; T. W. Miller & Co., 250 barrels; Clayton Oil Co., 200 barrels; W. B. Maxwell, two for 100 barrels; South Penn Co., 250 barrels; Hope Gas Co., 100 barrels. November—Vesper Gas Co., 250 barrels; South Penn Co., 150 barrels; Hope Gas Co., 150 barrels; Grove & Parrish, 200 barrels; McCorwick & Co., 120 barrels; Philadelphia Co., 235 barrels. December—Carnegie Gas Co., 100 barrels and 140,000 cubic feet of natural gas; Grove & Parrish, 600 barrels; Philadelphia Co., 120 barrels; Vesper Oil Co., 100 barrels; Big Elk Co., 100 barrels and 115 barrels. July—South Penn Co., 100 barrels; Philadelphia Co., 150 barrels.

PLEASANTS COUNTY.

January—A. G. Higginbotham Co., 300 barrels; T. W. Larson, 120 barrels. February—Monon Oil Co., 250 and 200 barrels. March—Monon Oil Co., 300 barrels; Larsen & Co., 150 barrels. April—T. W. Larson & Co., 100 barrels. May—Monon Oil Co., two for 100 barrels. June—Higginbotham & Co., 125 and 100 barrels. July—Higginbotham & Co., 100 barrels. August—Monon Oil Co., two 100-barrel wells; Higginbotham & Co., 120 barrels. September—Monon Oil Co., 100 barrels.

ROANE COUNTY.

January—South Penn Oil Co., 200 barrels; Carter Oil Co., two for 350 barrels, 225 and 120 barrels; Fisher Oil Co., two for 400, 500 and 120 barrels. February—South Penn Co., 200 and 150 barrels; Carter Oil Co., 200 barrels, 600 and two for 100 barrels; Fisher Oil Co., 600 and 500 barrels; Oil Fuel Co., 100 barrels. March—Carter Oil Co., 400 and 300 barrels and 250 barrels; Fisher Oil Co., 150 and two for 100 barrels. April—South Penn Co., 100 barrels; Carter Oil Co., 420 and 300 barrels and 300 barrels; Fisher Oil Co., 700 and 150 barrels. May—South Penn Co., two for 100 barrels; Carter Oil Co., 350 barrels. June—Carter Oil Co., two for 400 barrels and 150 barrels; Fisher Oil Co., 350 and 120 barrels. July—South Penn Co., 200 barrels. August—Carter Oil Co., 125 barrels and 100 barrels; Fisher Oil Co., 150 barrels. September—Fisher Oil Co., 125 barrels; Carter Oil Co., 125 barrels. October—Carter Oil Co., 100 barrels. November—South Penn Co., 400 and 120 barrels; Carter Oil Co., 100 barrels.

WETZEL COUNTY.

January—Deep Valley Oil Co., 100 barrels; Hope Natural Gas Co., 200 barrels. April—N. S. Snyder & Co., two for 100 barrels; Hope Gas Co., 100 barrels. June—Sun Gas Co., 100 barrels. July—Sun Gas Co., 100 barrels; Carnegie Gas Co., 100 barrels. August—N. S. Snyder & Co., 200 barrels. November—Hope Gas Co., 100 barrels.

The above West Virginia gushers were drilled, by months, as follows:—

Month.	Wells.	Production, gushers.
January	17	4,350
February	21	5,250
March	15	4,280
April	25	5,425
May	14	2,440
June	27	6,780
July	11	1,630
August	16	2,930
September	14	2,150
October	16	2,615
November	19	3,190
December	9	1,595
Totals	204	41,895

Average production per gusher, 205 7/20 barrels.

Southeastern Ohio Fields.

The deep sand fields of Southeastern Ohio are the attractive features in the Buckeye State, with much work in Perry, Hocking, Fairfield, Licking, Wayne, Coshocto and Muskingum counties. It must be remembered that at a low market value for crude these fields attracted no attention by the oil going people, as the cost of a well represents from $8,000 up, as the sand is found from 2,700 to 3,500 feet and every well wall must be cased from the top to the bottom of the hole. The Union Furnace field, in Hocking county, the Crooksville field, in Perry county, and the Wooster field, in Wayne county, are the points of most interest, although a portion of Hocking and Wayne counties are in what is known as the Central Ohio gas belt.

During the year of 1913 there was a total of 1,715 wells finished in the Southeastern Ohio fields and were drilled, by months, as follows:—

Month.	Comp.	Prod.	Gas	Dry.
January	91	751	3	26
February	107	875	3	33
March	122	956	..	32
April	135	903	1	43
May	157	1,125	6	33
June	152	1,182	2	44
July	142	741	4	41
August	177	1,311	3	50
September	161	1,289	6	37
October	172	1,760	10	51
November	145	1,635	6	36
December	154	758	6	52
Totals	1,715	13,263	50	478

Average producing well per day, 11 2/11 barrels.

Total oil wells, 1,187.

During the year there were a total of 59 gushers drilled in the Southeastern Ohio field, with a total production of 9,040 barrels, which is an average per gusher per day of 153½ barrels, which shows that a large number of very small wells were drilled to bring the general average producer completed during the year down to only a little over 11 barrels. These gushers were, by months, as follows:

BELMONT COUNTY.

January—Natural Gas Co., 150 barrels. April—Natural Gas Co., 200 barrels. May—Natural Gas Co., 100 barrels. October—Natural Gas Co., 100 barrels. November—Natural Gas Co., 240 barrels.

HOCKING COUNTY.

January—Griffin Producing Co., 100 barrels. February—Fisher Oil Co., 175 barrels. March—Logan Gas Co., 200 barrels; Griffin Producing Co., 100 barrels; Plymouth Oil Co., 100 barrels. April—Chartiers Oil Co., 100 barrels; Logan Gas Co., 100 barrels. June—Logan Gas Co., 100 barrels. July—Union Furnace Oil Co., 100 barrels. August—Logan Gas Co., 120 barrels. October—Chartiers Gas Co., 100 barrels; Logan Gas Co., 180 barrels and two 100 barrels. November—Chartiers Ill Co., 110 and 100 barrels; Plymouth Oil Co., 250 barrels; Union Furnace Co., 200 barrels. December—Murphy Bros., 100 barrels.

FAIRFIELD COUNTY.

August—Turvis-Turner Oil Co., 200 barrels. November—Welrick & Nolders, 350 and 200 barrels.

LICKING COUNTY.

November—Columbus Oil & Fuel Co., 100 barrels. December—Columbus Oil & Fuel Co., two 150 barrels.

PERRY COUNTY.

January—Lupher Oil Co., 150 barrels; Standard Fuel Co., 150 barrels. February—Kenyon Gas & Oil Co., 100 barrels; Columbus Gas & Fuel Co., 100 barrels. March—Columbus Gas & Fuel Co., 200 barrels. April—Columbus Gas & Fuel Co., 115 barrels. May—Columbus Gas & Fuel Co., 100 and 200 barrels; Ralph Bros., 150 barrels. June—Columbus Gas & Fuel Co., 250 barrels; Trout Oil Co., 150 barrels; Chicago Oil Co., 200 barrels. July—Columbus Gas & Fuel Co., 150 barrels; Standard Fuel Co., 100 barrels. August—Chartiers Oil Co., 125 barrels. September—Curtis, Riken & Co., 315 barrels; Chicago Oil Co., 150 and 100 barrels; Emory Oil Co., 200 barrels. October—Ralph Bros., 125 barrels; Emory Oil Co., 125 barrels; Columbus Gas & Fuel Co., 160 and 150 barrels; New York Coal Co., 120 barrels; Gates-Davidson & Co., 200 barrels. November—Ralph Bros., 250 barrels; Vensel & Keating, 300 barrels; Chicago Oil Co., 150 barrels.

Central Ohio Fields.

The Central Ohio fields, covering an area of 200 miles north and south by about 75 miles east and west of the State, are looked upon as the coming oil producing section of the Buckeye State, especially the eastern edge of the heaviest section of the gas field, as many oil wells have already been developed to show that the product exists there, although expensive to get on account of the great depth that one must drill to penetrate the oil bearing sand formation, known as the Clinton Limestone, which is found from 2,700 feet to a total depth of 3,500 feet. During the year a total of 474 wells were drilled in the gas field, of which 62 were petroleum producing wells, with a production of 2,254 barrels, and 122 were dry holes. There were 290 gas wells with a gas volume of 485,504,645 cubic feet, which is something wonderful when figured out how many cities this amount of natural gas will supply with fuel and light.

The wells for the year were finished, by months, as follows:—

Month.	Comp.	Oil wells.	Prod.	Gas wells.	Dry holes.
January	50	4	129	25	29
February	56	4	65	35	17
March	29	7	260	18	4
April	13	3	120	9	1
May	27	5	170	9	13
June	29	5	85	11	4
July	31	7	205	16	8
August	50	7	270	32	11
September	39	5	270	23	11
October	52	9	488	37	6
November	55	2	65	40	13
December	52	4	65	34	14
Totals	474	62	2,243	290	122

The above gas wells and their production each month of gas for the year were as follows—

	Gas wells.	Volume, gas.
January	26	60,057,006
February	35	58,664,513
March	18	22,880,836
April	9	13,900,000
May	9	9,810,000
June	11	20,916,211
July	16	28,383,346
August	32	57,157,673
September	23	38,002,735
October	37	80,004,919
November	40	47,397,311
December	54	41,741,095
Total	290	485,504,645

Average per oil well per day, 36 1/16 barrels.
Average per gas well, 1,674,151 cubic feet.

The above wells were confined to the different counties for the year as follows:—

County.	Comp.	Oil wells.	Oil prod.	Gas wells.	Gas prod.	Dry holes.
Licking	169	13	245	77	76,089,364	19
Ashland	118	1	20	96	215,089,272	21
Hocking	62	12	974	28	41,382,000	22
Wayne	47	25	864	11	15,363,506	11
Medina	28	..	10	20	22,596,455	8
Richland	31	..	...	23	75,770,048	8
Knox	24	1	10	15	9,687,000	8
Fairfield	23	..	...	14	18,272,000	9
Coshocton	6	5	70	1	750,000	..
Perry	8	3	75	2	12,000,000	3
Muskingum	5	1	10	1	1,000,000	3
Lorain	8	1	15	2	7,500,000	5
Summit	2	..	...	..	.....	5
Cuyahoga	1	..	...	..	.....	1
Tuscarawas	1	..	...	..	.....	1
Holmes	1	..	...	..	.....	1
Totals	474	62	2,243	290	485,504,645	122

During 1913 there were a total of 171 gas wells drilled in Central Ohio that are in the gusher list, having produced from 1,000,000 cubic feet up dial, and seven oil gushers with a combined production of 1,025 barrels. The 171 gas wells showed a volume of 429,944,447 cubic feet.

The few oil wells of importance in the Central Ohio fields during the year were as follows:—

HOCKING COUNTY.

March—Logan Gas Co., 225 barrels. August—Logan Gas Co., 125 barrels. September—Logan Gas Co., 125 barrels. October—Logan Gas Co., 200 barrels and two 120 barrels.

LICKING COUNTY.

June—Whitehill & Heasley, 110 barrels.

Northwestern Ohio Fields.

No new and prolific pools were found in the Northwestern Ohio fields during the year 1913, although the year was an exceptionally active one for an old field that has been drilled over for close to 30 years. The wells finished have been mostly in territory that has been drilled a couple of times and is now being drilled over for the third time. Very good results have been obtained by the drill, and while gushers are a scarcity the wells average up nicely. The year's work was confined to thirteen counties, where a total of 973 holes were punctured. The wells were finished by months as follows:—

Month.	Comp.	Prod	Gas.	Dry
January	53	709	1	4
February	43	499	..	3
March	65	599	..	8
April	53	632	1	10
May	78	871	..	8
June	80	1,206	1	6
July	107	1,243	3	6
August	119	1,414	1	15
September	96	880	..	13

October	96	224	..	8
November	90	1,222	1	4
December	93	1,027	1	4
Totals	973	11,166	8	89

Wood county remains in the lead in finished work for 1913 the same as it has for many years back. The wells above were divided among the different counties during the year as follows:—

County	Comp.	Prod.	Gas.	Dry.
Woo	293	3,404	4	23
Hancock	193	2,927	1	19
Allen	143	1,883	..	5
Sandusky	109	625	..	5
Mercer	45	573	..	..
Seneca	43	713	1	7
Van Wert	42	379	..	4
Lucas	37	355	..	8
Ottawa	30	148	1	3
Auglaize	27	142	1	7
Wyandot	3	16	..	2
Putnam	2	7	..	..
Fulton	1	....	..	1
Totals	973	11,166	8	89

Producing oil wells, 876.
Average per well, 12¾ barrels.

The wells of 100 barrels or more in the Northwestern Ohio fields were distributed as follows:—

HANCOCK COUNTY.

September—Ohio Oil Co., 175 barrels.

WOOD COUNTY.

April—Paragon Refining Co., 125 barrels. May—Ohio Oil Co., 100 barrels. June—I. M. Shuler, 140 barrels. August—J. T. Frost, 150 barrels. November—J. T. Frost, 150 barrels. December—Montgomery & Co., 100 barrels.

SENECA COUNTY.

January—Citizens' Bank and Bacon, 125 barrels. March—Paragon Oil Co., 125 barrels.

The Indiana Field.

The Indiana field did not show much work for the first half of the year, but with the opening of the Sullivan county shallow sand field a great change was noticeable in the number of finished wells and production, for the new field certainly made a vast difference with its wells that showed far better than 100 barrels, and many were in the gusher class. The Sullivan county field was first brought to light in May, when an Eastern company brought in a wildcat well on the Boyer tract that attracted much attention by coming in at close to 300 barrels a day from a depth of less than 800 feet. This well was the occasion of activity, and from that time until the close of the year a total of 132 wells were drilled in the field. At the close of 1913 the Sullivan field was the most prominent field in the high grade sections east of the Mississippi River and gives the trade something to work upon.

The wells in the Indiana field for the year of 1913 were drilled by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	5	65	..	1
February	9	271	..	..
March	17	327	1	3
April	5	223	1	..
May	20	555	..	3
June	22	467	1	5
July	22	384	1	7
August	33	415	3	6
September	33	756	..	15
October	44	1,466	2	15
November	47	1,420	2	11
December	51	1,012	1	20
Totals	310	7,361	12	86

Total oil producing wells, 212.
Average production per well per day, 34 5-7 barrels.

The above wells were divided up among the different districts as follows:—

District.	Comp.	Prod.	Gas.	Dry.
Sullivan	132	4,032	5	52
Muncie	54	1,765	..	7
Camden	33	423	..	6
Oakland City	21	192	4	5
Princeton	17	310	..	1
Parker City	11	395	..	3
Montpelier	11	46	..	2
Geneva	8	73	..	..
Washington	7	55	..	5
Keystone	6	50	..	1
Marion	5	5	2	2
Vincennes	2	....	1	1
Daviess	1	10	..	..
Noblesville	1	5	..	..
Peru	1	....	..	1
Totals	310	7,361	12	86

The Indiana wells of 100 barrels or more was as follows:—

CAMDEN DISTRICT.

April—100 barrels.

MUNCIE DISTRICT.

February—Louis Friedman, 250 barrels. March—Marks & Watts, 100 barrels. April—Rock Oil Co., 250 barrels. May—Louis Friedman, 200 and 150 barrels. June—Rock Oil Co., 110 barrels; P. O. Johnson, 100 barrels; Louis Friedman, 100 barrels. July—Rock Oil Co., 110 barrels.

PARKER CITY DISTRICT.

May—Marx & Watts, 100 barrels. July—Driscoll, Brandt & Co., 125 barrels. October—Driscoll, Brandt & Co., 150 barrels.

SULLIVAN DISTRICT.

August—Kennedy Oil Co., 267 and 150 barrels. September—Ohio Oil Co., 300 and 175 barrels; Kennedy Oil Co., 175 barrels. October—Ohio Oil Co., 250, 225, 200 and 150 barrels; Kennedy Oil Co., 125 barrels. November—Ohio Oil Co., 275, 200 and 150 barrels. Kennedy Oil Co., 200 barrels; Shelburne Oil Co., 250 barrels. December—Kennedy Oil Co., 300 and 200 barrels; Doit, Young & Co., 100 barrels; E. R. T. Oil Co., 115 barrels; Shelburne Oil Co., 250 and 200 barrels.

The Kentucky Fields.

The Kentucky districts for the year 1913 showed a general gain in completed work and an expansion of the productive area in many directions. Of main importance, probably, was the increase of operations in the deep sand fields, which have been proven to extend generally over the mountainous district of the eastern section of the State, and through a tier of Western Kentucky counties extending all the way from the Ohio River to the Tennessee border. The older fields in point of development received continuous development throughout the year, little expansion of proven areas being shown but a steady gain in completed work and new production attending drilling operations. The State received more wildcat development than during any previous year since operations were inaugurated. Several new districts were added to the productive area and possibilities shown in new production by sections which were previously considered entirely out of line with the oil-bearing formations. The higher prices commanded by crude oil throughout the year were mainly responsible for the further testing of unknown districts. The finding of deep oil in profitable quantities attracted many of the older and more prominent petroleum companies of the country, who previously took little faith in the shallow sand pools of the Bluegrass State. Evidence of Berea grit formation in half a dozen eastern counties and the extension of the Illinois and Indiana sands through Western Kentucky counties were shown definitely in the 1913 drilling campaign and these operations seem to assure the State a permanent place in the list of oil-producing districts, as initial operations in deep sand formations brought results sufficient to encourage a more thorough test of deep sand possibilities. The results have been the proving of several commercial pools of importance and the deep sand tests have been comparatively few in number. The Morgan county pool, in the eastern section, and the Ohio pool, in the western section, constitute the more important discoveries in deep sand development for the year. A surprise to the trade was the drilling of a hundred barrel gushing well in Allen county. This strike was made in a deep sand, pronounced identical to that developed in the near-by field of Ohio county and is regarded as indicating a southern extension of the Ohio county field.

Completions in all the districts for the year reached a total of 211, in contrast to 170 for the preceding year. The dry holes numbered 77, as compared to 66, the record of the preceding year. The aggregate new production for 1913 was 2,319 barrels, a gain over the preceding year's yield of 610 barrels. Excepting the year following the extension of a pipe line into the State, when rapid development of shallow sand pools brought about the largest output for any one year, the past year's record stands as the best since the industry was established.

The monthly record of completed work for the year just closed is as follows:—

1913.	Completions.	New production, barrels.	Dry.
January	11	43	5
February	23	425	8
March	9	105	5
April	21	501	10
May	17	103	4
June	16	137	7
July	18	221	7
August	18	163	8
September	26	192	7
October	13	124	2
November	14	109	4
December	25	196	10
Totals	211	2,319	77

The new completions were made in the established fields of Wayne, Wolfe, Morgan, Lawrence, Floyd, Knott, in Eastern Kentucky, and in Ohio county, Western Kentucky, where marketing facilities exist, and in the counties of Allen, Barren, Cumberland, Perry, Shelby and Martin counties, where no pools have yet been proven sufficient to attract the pipe line companies.

The completions for the year were distributed by counties as follows:—

1913.	Completions.	New production, barrels.	Dry.
Wayne	99	723	32
Morgan	48	1,077	12
Wolfe	20	100	10
Lawrence	13	67	2
Ohio	8	225	5
Allen	8	114	1
Barren	6	14	3
Cumberland	2	..	2
Perry	2	..	2
Floyd-Knott	1	..	1
Boyd	1	..	1
Shelby	1	..	1
Knox	1	..	1
Martin	1	..	1

Gas wells were drilled in Knox and Martin counties, two being credited to each county and producing a yield of commercial importance.

The Wayne county district, Southeastern Kentucky, and the stand-by of the State in production ever since the establishment of the industry, showed the largest amount of development work for the year, but precedence in the matter of yield was taken by the Morgan county field, a development of the past year. The expansion of the six established pools of Wayne county was a noteworthy feature of the year's activity in the southeastern section. With a vast area of drillable territory, many new locations were offered well within the territory regarded as productive, and operators took advantage of the better crude oil prices to more thoroughly drill holdings that had been held for years. There was an entire absence of wells of the gushing class in Wayne county, in contrast to the earlier days, when hundred barrel wells were drilled in almost every week. Few completions last year exceeded twenty-five barrels and only two strikes making as much as fifty barrels daily were recorded. The absence of gushing wells is attributed to the diminished gas pressure, which has weakened after years of puncturing. Little work of a purely experimental nature was attempted, operators centering their efforts at connecting up the various pools by drilling between established lines. Practically all the ninety-nine completions listed during the year were drilled within or in close proximity to the established pools, which seem to show a large productive area extending over the greater portion of the lower end of the county. Of the established pools, composed of Denny, Mt. Pisgah, Griffin, Stubensville, Parmleysville and Cooper, the first three mentioned contained the bulk of new developments. These sections have been pretty closely connected. They form the newer extensions and the gas pressure is still sufficient to give forth an occasional gushing well. Two wells in the Mt. Pisgah section, of fifty barrels' capacity, were the best strikes of the year. The Copper pool, older in point of development, showed signs of reviving life and contributed a number of good strikes. This is a pool where small producers are the rule, but the percentage of failures is low. The Stubensville district was extended toward the south by several advance tests. No work was undertaken in the upper sections. At one time the old Sunnybrook district was the largest producing pool in Kentucky but this was exhausted several years ago. The combination of proven territory, with the cheapness of drilling, attracted many new operators to the Wayne county district. The grade of petroleum, practically the same in all the pools, is found in shallow sands. Deep drilling has ben tried out on a small scale and a few indications of deep oil have been found but it is likely that operations will continue to be centered on shallow sand operations as long as the yield continues as it has in the past. Extensions toward McCreary county will attract the trade during the present year and the trend of development is in that direction. McCreary county has a number of producing wells and is regarded as an extension of the Wayne county field.

South of Wayne county, in Tennessee, several test wells, drilled by local operators, were failures. The counties of Pickett, Fentriss and Overton at one time contained producing pools, but no production is now made and no new efforts are considered for restoring production.

The Morgan county field, Eastern Kentucky, was the mecca toward which most of the new operators flocked during the year. Within the year this field, which was practically unknown the year previously, came to the front with a bunch of gushing wells which placed the county in the front of producing districts. The production is found in a deep sand, 1,300 feet and below, and this fact attracted many operators from the northern and eastern fields who had previously been skeptical of the permanance of the shallow sands. The Morgan county field is centered around the village of Cannel City, where the first wells were drilled. During the year many test wells were drilled in outlying sections and the results are still a puzzle to the trade. Some good strikes have been made miles away from the proven area, but dry holes have shown up in proximity to gushing wells with such frequency that many of the trade regard the field as too spotted for any considerable extension. The results of the search work have been so successful, however, that many operators are pinning their faith in the deep sand developments and are going ahead with advance operations where leases are offered. Toward the northeast the first definite extension of the Cannel City pool was shown late in the year. In other directions a series of failures put a damper on advance work. From present indications, Morgan county is regarded as one of the coming fields of the country. The deep sand oil, in quantities such as strikes have shown, looks good to the trade and that the field is as spotted as several investigators claimed, is denied by some of the leading operators. That the sand in Morgan county is the Berea grit, which has been found over a widely-scattered area of Northeastern Kentucky, has been pretty well determined.

Efforts to connect the Morgan county pool with the other deep sand fields of Eastern Kentucky, included in Wolfe and Lawrence, have been attempted in a number of spots, the area is so large that the few scattered tests have little bearing on the possibilities of proving a general extension of the Berea grit through Eastern Kentucky. Except for the definite results established in Morgan, Wolfe and Lawrence counties, little has been accomplished to bear out the opinion. Drilling in the mountainous region is an expensive proposition, and work is likely to proceed slowly.

Of the thirty-six completions in the productive class credited to the Morgan county field for the year, three produced in excess of one hundred barrels daily each. Several wells of fifty barrels' capacity were drilled and quite a number of wells of less than five barrels' capacity. The initial wells have been pumped steadily for a year and show very little decrease in yield. During the winter a branch pipe line was extended into the county from the trunk line entering Kentucky from West Virginia, and the Morgan county yield is now taken care of by the Cumberland Pipe Line Company. The developed area, established over a radius of four miles, is the center of much activity just now. That the average cost of drilling a well is $4,000 is keeping many leaseholders from prosecuting work on a larger scale. Much territory is held for future development.

New operations in the Wolfe county field during the year were centered in efforts to extend the productive area formerly proven in the Campton district. This advance work resulted in an extension toward the northeast, and for a distance of six miles from the initial development at Campton a field of promise was shown. The new work was centered principally on Stillwell creek. Of the twenty new wells credited to the county for the year eighteen were drilled in the Stillwell region. One of these showed a yield of seventy-five barrels daily and caused a general revival of operations. While half of the wells drilled were failures, most of the tests were experimental and entirely outside the productive area. Only two wells were drilled in the old pool during the year, one being dry and the other a small producer. With new strikes of very rare occurence, the old Campton pool has maintained a steady average production for the past ten years and looks good for many more years of productiveness. With the revival in deep sand drilling this county will command more favorable consideration during the coming year and will receive a more thorough trying out.

The Lawrence county field, bordering West Virginia, failed to turn out anything of a sensational nature and was a disappointment to those who expected a duplication of the big wells drilled on the West Virginia side. The best the Lawrence field has ever made is small compared to the gushing wells drilled in the counties to the west. Of the thirteen wells drilled during the year one showed a yield of twenty barrels. Experimental work was carried on in several directions. The wells thus far drilled are profitable, and the scarcity of dry holes has been one of the redeeming features of the field. Probably the most noteworthy feature of the year's operations was the opening of a new pool several miles ahead of production. A well of twenty barrels' capacity was drilled in the Fallsburg section, several miles removed from the established area around the town of Busseyville. With this "wildcat" strike, the best made in the county thus far, the Lawrence county leaseholders believe they are getting a lead on the formations, and if the Fallsburg strike is repeated at the new locations where work is now under way, the county will bear watching. On a line between the prolific West Virginia fields and the deep sand pools of Eastern Kentucky, Lawrence county has always been regarded as a promising location for advance work. Late in the year some drilling was started on the West Virginia side, opposite Lawrence county. Three strings were set up, but drilling has not progressed to a sufficient stage to indicate the outcome. Counties bordering Lawrence were subjected to some experimental drilling during the year. One completion in Boyd county was a failure. Another in Martin county developed a good gas flow, with some petroleum. A deep test drilled in Johnson county, toward the close of the year, was reported a twenty-five barreler, and if this shows up according to reports, it will mean some progress towards extending the pool in Eastern Kentucky. This month new work is being started in Johnson county and lease-takers have been over the field.

The only commercial field of importance developed in the wide drilling campaign in Western Kentucky is a limited area near Hartford, Ohio county. This field is a development of the past year, although the strikes which first attracted the trade were made the year previously. In the Hartford pool eight wells were drilled during the year and only three showed up in the producing column. The big production of the wells that were successful inspired new work both in Ohio and bordering counties. Because of the remoteness of that section from drilling supplies and the hardness and depth of the oil-producing sands, progress in new operations was slow. One well in the Hartford district started out with a yield of one hundred barrels daily, in the 1,800 foot formation. The other successful wells produced in excess of fifty barrels daily each. The failures were listed in the advance work which was attempted in several directions from the gushing wells. So far the productive area shows up as limited and little success has attended the attempts to extend the production. The output of the county was sufficient to attract buyers and Ohio county now figures in the list of producing counties. At this time efforts continue to extend the productive area, the work for the most part being done by local operators. The big production of the first wells drilled attracted many operators and the field was thoroughly leased over, for the most part by operators who prefer to play a waiting game and let the other fellow do the testing. That the county contains a deep pool of importance seems probable and there will be no abatement in the search for extensions. The area drilled over extends for a radius of eight miles from

the Hartford wells. There are many who regard the Ohio county field as a southern extension of Indiana and Illinois fields. No shallow oil has been found in the field. In the deep sand the gas pressure is great.

Among the wildcat districts of Western Kentucky which showed noteworthy results is Allen county, to the south of Ohio county. One big well was drilled in this county, maintaining a yield of one hundred barrels daily for several days. This caused a rush of operators and a number of additional tests were made. A group of producers near Petroleum, and some wells of fair capacity near the town of Scottsville form the more important developments. Excepting the original gushing wells, the subsequent strikes have been of small capacity. Oil is found in a deep sand, regarded the same as developed in Ohio county. No regular pumping tests have been made of any of the Allen county wells and no market has yet been established for the output of the wells drilled. Of eight wells completed in the county in 1913 only one was listed as a failure and this, more than anything else, will encourage a continuation of drilling. Operations are continuing during the winter and a market will most likely be established within the next year, and the daily output is regarded as sufficient. At the beginning of the year half a dozen tests were under way, all located in the two districts of Petroleum and Scottsville, respectively. Some effort has lately been made to pump the wells drilled and storage tanks have been erected. If a paying production is found it will lead to a tank car line for taking out the yield.

Along the upper and lower ends of the Western Kentucky field developments were pursued in a number of counties. Along the Ohio river there was great activity in leasetaking toward the close of the year, the counties of Meade, Davis, Hancock and McLean being gone over thoroughly and thousands of acres taken up. There was little attempted in the way of testing this area, because of the lateness of the season, but work is contemplated for all these counties during the present year and because of proximity to the Indiana and Illinois fields, the prospects are excellent for some new discoveries. Meade county contains a gas belt of importance, the product having supplied Ohio River towns for a number of years. In the infancy of the industry several tests were drilled for oil in Davis, McLean and Hancock, but no strikes were made.

Along the lower end of the field developments assumed some importance in Barren and Cumberland counties. These are both shallow sand districts, in contrast to the counties intervening between the upper and lower sections. In Barren county a number of producing wells were found along Beaver Creek, all yielding small production. Three out of six punctures were strikes, for a total of fourteen barrels. The Barren county oil is found at less than 300 feet. At one time the industry flourished before developments were started on the present scale in other sections of Kentucky. Twenty years ago several dozen wells were drilled in the Boyd's Creek section of Barren county and many of them have produced without dimunition ever since. Production at one time was sufficient to feed a small refinery, which was operated for two years. For the past four or five years there has been no new drilling, until the renewal of operations late in the year. The new Beaver Creek field, which now contains several drilling wells, is several miles in advance of the Boyd's Creek district.

Only two wells were finished up in Cumberland county, both being failures. This is one of the abandoned districts, where the advance in prices caused a renewal of activity. Eight years ago a prolific shallow sand field was developed around Burkesville, nearly one hundred producing wells being drilled. Several of these were gushers, but failed to maintain a permanent yield. Following a pipe line extension into the field the shallow sand was quickly exhausted and the county has not figured in production for several years. Developments for deep oil are planned and the tests will be of interest, as many leases are still held in the county and a few strikes will bring a general renewal of activity.

The Knox-Whitley field, in Southeastern Kentucky, at one time the leading producing district of the State, was backward in the way of new operations during the year. The shallow sand district of Knox county, which has furnished hundreds of short-lived producers, was exhausted. The Whitley county wells, a little deeper and yielding a slightly better grade of oil, continued to produce and maintain a good average. The only new tests in Knox county were drilled for deep oil and gas. A 2,200 foot well drilled in the Cumberland River territory reached a good gas sand at 1,800 feet. In this section three other deep gas wells have been found all at the same depth. At the beginning of the year a new district is being tried out in Knox county. Rigs have been planted along Smoky Creek and half a dozen deep tests will be drilled, the first starting early this month. This region intervenes between the old shallow sand pool of Richland and the deep gas field of the Cumberland River section. During the year no new drilling was attempted in the Whitley county pool, but arrangements have lately been made for a renewing of drilling and several wells will be drilled for deep oil, locations having been made near Williamsburg. In the revival of operations in the Knox-Whitley field the Clay county region is sharing attention. Late in the year ten thousand acres were leased up and as soon as weather conditions permit drilling for deep oil will be started. Clay county has the best prospects for a deep sand development of any of the Southeastern Kentucky counties. Half a dozen tests have shown gas in large quantities. Among former operators in that county were Guffy & Galey and the producing branch of the old Standard Oil Company. A pipe line runs through the county.

A number of unreported tests, drilled in the remote mountain counties of the eastern section of the State, bear out the idea of the Berea grit extension. In Perry county a deep well showed gas at 1,800 feet in good quantities. Two deep wells were drilled in this county, one being dry. Magoffin county was subjected to several tests and two wells showed oil in small quantities at 1,200 feet. During the closing month of the year a strike was reported from Johnson county, a showing for 25 barrels being reported at 1,900 feet. This report is causing an influx of operators to that section and several companies have leased territory. Two wells drilled in Breathitt county early in the year were failures. One of these wells was drilled to a depth of 2,600 feet. A deep test in Martin county drilled in November, and reported dry, is said to show a yield of twenty barrels. This county has shown a number of big gas wells, which are now supplying towns along the Big Sandy River.

The general renewal of activity in old fields of the State did not extend to the Floyd-Knott field, known as the Beaver Creek district. Only one completion was made during the year, it being a failure. This field was drilled over ten years ago and several dozen good producers found. The district continues to make a small production from old wells. A deep venture in Montgomery county was dry at 2,200 feet. A failure also resulted from the only test ever drilled in Shelby county.

The old fields of Estill, Bath and Rowan counties, in the central district, failed to come back, no new work being started during the year. No production is now made in the Estill county field, which seems a development distinct from any other field of the State, all the wells being less than two hundred feet deep. The Bath-Rowan district has been one of the biggest surprises to the trade for a number of years, because of the remarkable staying qualities of the shallow sand wells. With no additional production developed for five years the old wells have shown no decline in output and continue the yield they started out with ten years ago. This is the only heavy-grade field in the State producing what is classified commercially as Ragland oil. The producing branch of the Standard inaugurated this district and has been the sole owner of production. Efforts looking to extensions of the Ragland pool were abandoned several years ago. Drilling for deep oil has also been unsuccessful.

Production of petroleum in all the fields showed a slight increase over the preceding year's output, the approximate yield being 542,000 barrels. This was nearly all of high grade quality, the yield of heavy petroleum from the Bath-Rowan field never being large. In rank of producing fields, Wayne county led with nearly half the total production. Wolfe and Morgan counties maintained nearly the same figures, with the Bath-Rowan, Floyd-Knott, Ohio and Whitley fields showing a small yield.

The yield by month is as follows:—

1913.	Runs.	Deliveries.	Stocks.
January	41,982	5,045	130,015
February	46,751	4,970	127,827
March	39,194	5,138	134,667
April	38,794	4,253	119,553
May	42,716	6,731	90,505
June	39,069	6,547	69,450
July	48,119	6,340	61,753
August	49,706	6,309	74,706
September ...	52,728	6,034	82,315
October	46,081	2,015	93,426
November ...	43,929	2,128	96,971
December	43,822	3,112	85,107
Totals 542,551		58,322	.....

Prices registered a slight gain early in the year. The respective grades at the beginning commanded $1.15 and 65 cents for the light and heavy grades. A series of advances during the spring established prices at $1.35 and 72 cents on the two grades and these figures have prevailed the greater part of the year. With the exception of a slight portion of the Wayne county output the product has been marketed by the Standard. The refining plant of the Indian Refining Company, at Georgetown, Scott county, was idle. Formerly this plant used much of the Kentucky production, as well as drawing on the Illinois fields.

No extensions of the pipe lines were made, except to care for additional developments in the districts where the main lines extend. The only new field where operations assumed sufficient importance to warrant a market was Ohio county and a tank line handles the output of that field. The Western Kentucky field is far removed from the terminus of the pipe line, in Eastern Kentucky, and there is little probability of an extension into the western district, as the outlay would be too great. A pipe line extension is promised for the Whitley county field during the coming year, if hopes of operators are realized and the production is increased. That field, while closely connected with the Knox county districts, has had to depend on the tank car method of marketing the output. The production now is light, but many new wells will be drilled during the spring and efforts will be made to connect the field with the Smoky Creek pool in Knox county. The productiveness of the wells drilled in Whitley county ten years ago seems to assure a lasting pool. In Lawrence county a pipe line extension to the new Fallsburg district is contemplated. New wells are drilling in this extension and if production is increased a line will be extended.

The most important gas development project yet attempted in the State was begun late in the year, the construction af a trunk line from the gas fields along the Kentucky-West Virginia border to Louisville and smaller towns of Central Kentucky. This line extends over one hundred miles through the Eastern Kentucky mountains and the cost will be in excess of one million dollars. The Byllesby interests, of Chicago, are engaged in the undertaking. The pipe line has been completed almost to Louisville and gas will be sent through the lines by April, 1914. The gas wells in the Warfield district will be drawn upon and the piping of the product will lead to further development of the field in Martin county, on the Kentucky side.

In other gas districts not a great deal was accomplished in the way of new developments. The Menifee county field is the source of the largest supply within the State. The output of this district is piped to Lexington, Paris, Winchester and a number of lesser cities. No new wells were drilled during the year. About forty are now in commission and a field of wide extent has been proven. In the southeastern gas belt two new wells were drilled in the Knox county belt. One was a failure and another showed an extension of the gas belt of about three miles, a fair-sized well resulting from a deep test near Barbourville. In the Wolfe county gas belt no new wells were drilled during the year.

The close of the year witnessed unusual activity in lease-taking in all sections of the State and this is taken as indicating a further expansion of drilling operations during the present year. Interest is mainly centered in further tests of the possibilities of deep sand production, as it is realized that deep oil will have to be found if Kentucky is to occupy a permanent place in the list of oil-producing States. Until the past year the crude prices offered little incentive for deep drilling and consequently most of the deep sand ventures have been failures of late. At this time some entirely untested regions are being tried out and wildcatting will be pursued on a larger scale when summer arrives. West of Louisville an extensive area will be tested out by Northern operators, who have secured leases in four counties. Twelve wells will be drilled along the Ohio River at intervals of one mile. Three rigs have now been placed for the initial tests. The searches will be deep and will be taken as a good test of possible extensions of Illinois and Indiana production. The close of the year also showed a flurry in lease-taking north of the Tennessee line, in Knox and Whitley counties. As soon as the weather moderates a string of deep test wells will be drilled between the deep wells of Whitley and the gas fields of lower Knox county. Oklahoma operators will do this work. Further testing of the area adjoining the Lawrence county field, on the West Virginia side, will be undertaken. Several wells late in the year were failures. Further expansion of the deep sand field of Morgan county is looked for and probably the bulk of work in Eastern Kentucky will be located in that county for the year. It is improbable that any new operations will be attempted in Southwestern Virginia. Two tests near Kentucky were failures. One was drilled below 2,000 feet.

The Illinois Field.

The Illinois field has been one of the standbays for the high grade fields during 1913, as alone to this State is due to present production of high-grade crude east of the Mississippi River, and without the good output of over 22,000,000 barrels of crude for the year the Eastern fields would look rather small.

The finished wells in the Illinois field each month for 1913 were as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	132	4,060	2	24
February	107	3,175	2	22
March	90	2,737	6	12
April	105	3,696	..	13
May	150	4,170	1	21
June	153	3,718	6	35
July	170	4,637	2	27
August	156	3,591	3	38
September	163	4,617	2	16
October	184	4,568	..	31
November	165	3,666	4	24
December	164	4,426	4	15
Totals 1,748		46,661	32	278

Total oil producing wells, 1,438.
Average production per oil well per day, 32 3-7 barrels.

The wells for 1913 were finished in each county as follows:—

County	Comp.	Prod.	Gas.	Dry.
Lawrence	697	31,999	8	68
Crawford	989	9,585	19	114
Clark	208	2,565	4	35
Cumberland	63	629	1	11
Wabash	49	998	..	24
Marion	22	492	..	1
Clinton	19	132	..	5
Macoupin	9	165	..	6
Coles	6	75	..	3
Jasper	2	30	..	..
Saline	2	....	..	..
Edwards	2	....	..	2
Jackson	2	....	..	2
St. Clair.....	1	....	..	1
Washington	1	....	..	1
Fulton	1	....	..	1
Union	1	....	..	1
Perry	1	....	..	1
Shelby	1	....	..	1
Douglass	1	....	..	1
Jefferson	1	....	..	1
Totals 1,748		46,661	32	278

The year was a prosperous one as far as gushers were concerned, as a total of 219 were drilled with a combined production of 30,765 barrels, or an average per well of a little better than 140 barrels, which is a remarkable average for that large number of wells in one field.

The more important wells in the Illinois field were distributed as follows:—

CLARK COUNTY.

March—Barnsdall, Hays & Co., 130 barrels. May—J. H. Parker, 100 barrels. July—J. H. Parker, 100 barrels. August—Mound City Oil Co., 175 barrels. September—Kewanee Oil Co., 100 barrels; Paul Kuhn, 100 barrels. November—Paul Kuhn, 100 barrels. December—Ohio Oil Co., 200 barrels; Kuhn & McClintoch, 115 barrels.

CRAWFORD COUNTY.

January—Ohio Oil Co., 200, 150 and 100 barrels. February—Annin Oil Co., 100 barrels; C. J. Hunter & Co., 100 barrels. May—New York Petroleum Co., 125 barrels; Hood, Penman & Co., 125 barrels. June—Ohio Oil Co., two 100 barrels; Beekirk Oil Co., 100 barrels. July—Ohio Oil Co., 150 and 100 barrels; Associated Producers Co., 100 barrels; J. C. Donnell, 100 barrels; Bell & Hammond, 125 barrels. August—McManus, Chapin & Co., 100 barrels; Associated Producers Co., 100 barrels; J. C. Donnell, 150 barrels; Ohio Oil Co., 225 barrels. September—J. C. Donnell Co., 100 barrels; Bell & Hammond, 200 barrels. October—Ohio Oil Co., 100 barrels; J. J. Cauley, 100 barrels; Geo. S. Bole, 200 barrels; Bell & Hammond, 100 barrels; C. Schehrer, Crandell & Co., 100 barrels. November—MacArthur & Samuel, 150 barrels. December—Ohio Oil Co., 150 barrels; J. C. Donnell, 100 barrels; F. L. Huntoon, 100 barrels.

CUMBERLAND COUNTY.

July—Ohio Oil Co., 100 barrels.

LAWRENCE COUNTY.

January—Ohio Oil Co., 250, 255, 225, 200, 110 and 175, 125 and five 100-barrel wells; Big Four Co., 200 barrels; Linden Oil Co., 100 barrels; J. C. Donnell, 150 barrels; W. V. McBride, 100 barrels; Bridgeport Oil Co., two 100 barrels. February—Ohio Oil Co., three 150 barrels and three 100 barrels; Silurian Oil Co., 300 and 200 barrels; Progressive Oil Co., 200 barrels; Bridgeport Oil Co., 100 barrels. March—Ohio Oil Co., two 150 barrels, three 125 barrels, three 100 barrels; Big Four Oil Co., 100 barrels; Linden Oil Co., 110 barrels; Bridgeport Oil Co., 100 barrels. April—Ohio Oil Co., 400, 300, 200, 225, 175, 150, 350, 150, 125, 110 and two 100 barrels; Chammes Oil Co., 100 barrels; Central Refining Co., 125 barrels; Hamilton Oil Co., 100 barrels. May—Ohio Oil Co., 250, two 100 barrels, 175, 150, three 125 barrels and three 100 barrels; Central Refining Co., 100 barrels. June—Ohio Oil Co., three 200 barrels, three 150, 150, two 125 and two 100 barrels; Associated Producers Co., 150 barrels; Chammes Oil Co., 125 barrels; Silurian Oil Co., 200 and 150 barrels. July—Ohio Oil Co., two 225 barrels, three 200, 150, 125 and six 100 barrels; Hamilton Oil Co., 100 barrels. August—Ohio Oil Co., 200 barrels, two 175 barrels, 125 and 100 barrels; Big Four Oil Co., 200 barrels. September—Ohio Oil Co., 200 barrels, 175, 150 barrels, four 125 barrels and nine 100 barrels; Bridgeport Oil Co., 225 and 150 barrels; Chammes Oil Co., 150 and 125 barrels; Progressive Oil Co., two 100 barrels. October—Ohio Oil Co., three 100 barrels, 130 barrels, two 125 barrels and four 100 barrels; Central Refining Co., 100 barrels; Silurian Oil Co., 500 and 400 barrels. November—Ohio Oil Co., 150 barrels, three 125 barrels and two 100 barrels; Chammes Oil Co., 100 barrels. December—Ohio Oil Co., 500 barrels, 200 barrels, 150 barrels, 125 barrels and four 100 barrels; Silurian Oil Co., 200 and 125 barrels; Bridgeport Oil Co., two 125 barrels; Central Refining Co., two 125 barrels.

EASTERN PIPE LINE STATISTICS FOR 1913.

The pipe line conditions have a great deal to do with the prosperity of the petroleum trade, especially in the high grade petroleum fields east of the Mississippi River, comprising the Pennsylvania grades found in Southern New York, Pennsylvania and West Virginia, in Southeastern Ohio, Kentucky, Northwestern Ohio, Indiana and Illinois fields, where nothing much but stripper wells can be looked for in any the fields outside of the deep sand districts of Illinois, the Sullivan field in Indiana, portions of the deep sand fields of Southeastern Ohio and some portions of West Virginia. The good prices paid for the crude petroleum at the wells during the year of 1913 were gratifying to the well owners, the values being the best in the history of the fields for many years.

In the high grade fields during 1913 there was a total of 53,605,872.50 barrels run from the wells and for the same period the deliveries were 76,180,215.32 barrels. The deliveries are made from oil from the Western lines, otherwise the stocks in the fields east of the Mississippi River would be depleted a long time ago, as the deliveries are nearly 23,000,000 more barrels than the runs for the year. At the close of the year the stocks of crude in the high grade fields

east of the big river were but 14,919,053.74 barrels.

The runs of crude from the wells of the different high grade fields with the daily average, were as follows for 1913:—

Field.	Runs, barrels.	Daily average.
Pennsylvania	22,552,207.47	62,645.02
Southeastern Ohio	3,539,972.53	9,888.81
Kentucky	522,552.50	1,451.54
Lima, Ohio	3,616,302.73	10,045.45
Indiana	842,255.27	2,339.60
Illinois	22,512,522.00	62,534.78
Totals	53,605,872.50	148,905.20

The deliveries and stocks for the year were, by fields, as follows; the stocks show the oil in storage at the close of business December 31, 1913:—

Field.	Deliveries, barrels.	Stocks, barrels.
Pennsylvania	47,191,427.04	5,768,045.62
Southeastern Ohio	24,203.60	369,681.68
Kentucky	58,323.22	85,106.67
Lima, Ohio	3,380,776.02	2,177,747.33
Indiana	10,576,701.28	965,099.20
Illinois	14,948,784.77	5,613,373.24
Totals	76,180,215.33	14,919,053.74

Pennsylvania Grades, Crude.

The following are the runs from the wells and the deliveries of oil from the Pennsylvania, Southern New York and West Virginia fields each month for 1913:—

Month.	Runs, barrels.	Deliveries, barrels.
January	1,822,560.50	4,183,439.80
February	1,484,859.19	3,718,942.71
March	1,565,261.91	2,714,261.81
April	1,694,407.63	4,017,243.99
May	1,658,478.05	4,332,117.22
June	1,615,461.27	4,270,145.52
July	1,649,967.87	4,086,905.86
August	1,553,086.49	4,229,105.21
September	1,551,903.47	3,871,690.26
October	1,567,347.44	4,049,786.41
November	1,416,945.04	4,090,455.76
December	1,647,518.81	3,627,362.40
Other runs	3,332,310.80	.....
Totals	22,552,207.41	.....

Southeastern Ohio Field.

The runs and deliveries of crude from the Southeastrn Ohio field, by months, for 1913 were as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	280,520.19	7,854.47
February	256,658.84	6,586.25
March	224,755.64	7,225.87
April	342,508.80	51.43
May	305,088.49	720.96
June	306,679.75	1,270.17
July	313,907.67	241.60
August	297,417.84	10.71
September	302,839.97	241.57
October	324,425.39	.....
November	281,960.69	.....
December	313,049.17	.....
Totals	3,559,972.53	24,203.60

The stocks of oil in Southeastern Ohio at the close of the year amounted to 369,681.68 barrels, against 386,633.30 barrels at the close of 1912.

Kentucky Field.

The runs from the wells and the deliveries for 1913 in the Kentucky fields were, by months, as follows:—

Month.	Runs, barrels.	Deliveries, barrels.
January	41,982.48	5,645.09
February	36,750.50	4,079.97
March	39,194.39	5,138.28
April	38,794.48	4,252.78
May	42,715.97	6,730.54
June	39,068.58	6,546.50
July	48,139.42	6,339.98
August	49,765.78	6,308.85
September	52,527.98	6,064.54
October	46,094.98	2,095.91
November	43,920.30	2,128.45
December	43,821.64	3,112.13
Totals	522,552.50	58,323.22

The stocks in the Kentucky field at the close of 1913 amounted to 85,106.67 barrels, against 130,014.51 barrels at the close of 1912.

Lima Field.

In the Lima field of Northwestern Ohio the runs from the wells as well as the deliveries for 1913 were, by months, as follows:—

Month.	Runs, barrels.	Deliveries, barrels.	Stocks, barrels.
January	234,428.55	213,638.06	2,984,167
February	191,840.68	190,624.38	3,093,215
March	191,645.72	198,586.08	3,297,015
April	244,763.62	341,597.09	3,316,009
May	293,759.58	385,787.38	2,980,576
June	220,654.03	352,818.00	3,218,981
July	220,084.22	251,311.78	2,871,264
August	223,956.92	265,802.27	2,817,825
September	225,303.55	213,408.18	2,728,819
October	259,186.61	387,280.53	2,562,961
November	207,960.69	325,159.22	2,208,108
December	232,531.44	305,402.05	2,177,747
Totals	2,674,545.01	3,380,776.02	.....
Other runs	931,817.12	.....	.....
Grand totals	3,616,362.73	.....	.....

The stocks of Lima oil at the close of 1913 amounted to 2,177,747.33 barrels, against 2,984,162.12 at the close of 1913.

Indiana Field.

The runs and deliveries of oil each month from the Indiana fields for the year of 1913 were as follows, but does not include the production from the Sullivan field, as the field has no pipe line, although the wells are capable of producing 2,000 barrels a day for the past four months, which would add at least 100,000 barrels to the output of Indiana for the year, which would bring the total production of the State close to 1,000,000 barrels:—

Month.	Runs, barrels.	Deliveries, barrels.	Stocks, barrels.
Jan.	56,477.45	944,839.50	976,297
Feb.	55,023.69	840,682.59	969,048
March	39,136.60	823,878.20	849,428
April	59,179.01	786,592.50	809,724
May	59,635.98	885,179.34	794,842
June	54,643.29	906,637.05	844,830
July	55,946.76	910,285.19	798,754
Aug.	51,135.68	983,461.64	867,482
Sept.	49,573.99	893,165.30	818,690
Oct.	49,423.24	873,743.14	912,070
Nov.	44,873.02	816,466.38	956,284
Dec.	59,055.19	931,830.45	985,099
Other runs	217,151.57	.....	.....
Totals	842,255.27	10,576,701.28	.....

The stocks of crude in Indiana at the close of 1913 were 965,099.20 barrels.

Illinois Field.

Outside of the crude runs from the Illinois fields by the Ohio Oil Co., and Tidewater pipe lines there were a total of 2,999,999.74 barrels runs as well as the same amount delivered. The runs and delivers for 1913 were by months as follows:—

Month.	Runs, barrels.	Deliveries, barrels.	Stocks, barrels.
Jan.	1,741,612.13	1,363,268.69	11,134,332
Feb.	1,478,984.79	1,237,264.05	10,366,955
Mar.	1,603,373.68	1,350,175.27	9,966,083
April	1,605,871.14	1,279,211.69	9,486,416
May	1,718,779.69	1,396,595.39	8,990,143
June	1,622,372.88	1,358,491.07	8,111,629
July	1,683,816.19	1,081,611.38	7,618,891
Aug.	1,642,418.25	968,667.12	6,934,310
Sept.	1,611,406.29	1,156,963.90	6,478,499
Oct.	1,162,272.40	1,293,940.34	5,782,397
Nov.	1,539,071.51	969,225.76	5,875,837
Dec.	1,592,543.31	1,463,372.11	5,613,373
O. lines	2,999,999.74	2,999,999.74	.....
Totals	22,512,522.00	17,948,784.51	.....

The stocks of Illinois crude at the close of 1913 amounted to 5,613,373.24 barrels, while a year ago they were 11,134,331.94 barrels, which is a very heavy decrease.

MID-CONTINENT REVIEW.

A twelfth month ago in presenting a review of the mid-continent field for 1912 it was stated that in development work the midcontinent field was a region of superlatives; that each succeeding year surpassed the preceding year in things accomplished. And notwithstanding the magnificent record of 1912 the succeeding year far outstripped it in every particular. The year 1913 was the banner year of the Kansas and Oklahoma oil regions, completing more wells, creating a larger production, yielding a greater revenue and marketing more oil than any other year in the annals of the industry in this territory.

A total of 11,494 wells were drilled, as compared with 1912, when there were 6,996 drilled, the high record up to that time. Up to January 1, 1914, there had been drilled in the mid-continent 53,412 wells, so that last year drilled almost one-fifth of all the wells in the Kansas-Oklahoma division. The cost of drilling these 11,494 wells was approximately $35,000,000. Of the 53,412 wells drilled in this field since the beginning, it is estimated that 5,696 were gas wells and 7,116 were failures. We have the records since 1905, but prior to that the figures are estimated. Thus there were 12,812 gas wells and dry holes and there are now 31,133 producing wells in the field, which means down to date 8,467 gas and oil wells have become exhausted in the field. All told 12,596 wells have been drilled in Kansas and 40,816 in Oklahoma. There are at present 17,657 wells connected to the Prairie Oil and Gas Companies lines. There are 4,917 wells connected to independent lines furnishing crude to Kansas refineries and 3,651 wells connected to independent lines supplying Oklahoma refineries. Many of the wells connected to Kansas refineries are in Oklahoma. The Prairie Oil and Gas Company has 2,593 connected wells in Kansas, as compared with 1,838 a year ago; it has 1,972 in the Osage, 6,685 in the Cherokee deep sand and 3,543 in the Cherokee shallow sand. It lost about 800 in the shallow sand district during the past year, the most of which are understood to have gone to the Vinita refinery, which pays a premium. The Prairie now has 2,324 wells on its lines in the old Creek nation district.

Of the total number of wells drilled in 1913 8,857 were oil producers, 1,008 were gas wells, the largest number ever drilled in the field in a single year, but not producing the largest volume; there were 1,629 failures, or almost twice as many as in any previous year. The estimated new production was placed at 293,085 barrels. If oil wells had a tendency to keep up their initial production even for a few weeks the world would soon be flooded with petroleum.

The year showed 2,180 wells drilled in Kansas, of which 1,518 were successful oil producers, 364 were gas wells and 298 were failures, with new production for the year estimated at 18,977 barrels. This was an increase of 100 per cent, generally over the previous year. Montgomery county led with 877 completions, while Chautauqua county with 457 stood second and Neosho county with 314 was third. It was a year or resumption in Kansas and the prospects are for a gradual increase in new development work in the Sunflower State the coming year. There is a well founded feeling that Kansas has not seen her best days in oil producing. An effort is now being made to discover a new producing district west of the Flint Hills and geologists are agreed that the formation is favorable to one of the largest producing fields in the West. Hundreds of thousands of acres of leases have been taken up.

In Oklahoma last year 9,314 wells were drilled, of which 7,341 were oil, 643 were gas and 1,330 were failures. The Cherokee was credited with 3,314 in the deep sand and 1,339 in the shallow sand. There were 651 completions in the Osage, 286 in the Pawnee district, 2,646 in the old Creek, 883 in the Cushing pool and 62 in Kay county. The famous Cushing pool has now drilled over 900 wells.

Of the 11,494 wells drilled in 1913 78 per cent. were successful in finding oil in paying quantities, an exceptional number being of the gusher variety, a larger percentage of this class of wells perhaps than was ever drilled in a single year in any field in the United States where high-grade oil is produced; the percentage of successful wells drilled in 1912 was 75. There was 14 per cent. dry holes and 8 per cent, gas wells. The percentage of failures was the same as in 1912, but the percentage of gas wells dropped from 10.6 to 8 per centum. Of all the wells drilled last year 86 per cent. was either oil or gas, a slight gain over the previous year. It is a fine testimonial to the region that with the vast amount of wildcatting in 1913 only 14 per cent. of all the wells drilled failed to prove profitable. Never was a more energetic drilling campaign pursued in any field, never so wide a sweep of territory covered, and the work continues at this time practically unabated.

During the year Cushing was developed, having been discovered the previous year, when 100 wells were drilled. There are now over 900 wells there and the pool would virtually be done for except for the recent discovery of a rich pay in the Bartlesville sand at about 2,600 feet. This will now be drilled. The Collinsville pool had its rise and decline. Wicey pool, rich but erratic, came to the front; prolific extensions were found in the Okmulgee county pools where big production was created. The east extension of the old Glenn pool was quite a surprise to all. Drilling crept up almost into the city streets of Tulsa and some splendid wells resulted. Lost City, though small in area, loomed up west of Tulsa and made fortunes for a few operators. The Boston pool was discovered during the year and the government auctioned off about 11,000 acres of leases. It was expected this pool would break the market, but when about 20,000 barrels a day production was reached the pool "went to pieces," water and dry holes playing the havoc. Those who paid enormous prices for leases were considerably "stung up." Toward the close of the year came in quick succession Owasso, Wan and Newkirk, all with gusher wells and promising big things, but so far they have proved only flashes and their day already seems to be over. Just now there are no threatening clouds on the horizon. Early in the summer some fair wells were brought in at Healdton, near Ardmore, in the far southern end of Oklahoma, and this district now gives the most lasting promise.

There was a vast amount of drilling all over the southern part of Oklahoma during last year. Great hopes were centered around Weleetka, Wetumka, Eufaula, and the region thereabouts. One well at Weleetka was drilling for a year and the depth desired never was reached. Eufaula had all the earmarks, but it failed to come through. The best results from drilling during the year were obtained in and around old districts. In many instances dry holes of other days were offset with good wells. It has come to be known to be an axom in this field that a "dry hole tells you where you were to drill and not where not to drill."

WELLS DRILLED IN 1913.

Kansas	2,180
Cherokee deep	3,314
Cherokee shallow	1,339
Osage	651
Pawnee	286
Creek	2,646
Cushing	883
Kay county	62
Miscellaneous	133
Total, 1913	11,494
Former years	41,918
Grand total	53,412

Mid-Continent.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	734	546	91	97	23,844
Feb.	640	478	64	98	21,976
March.	623	484	44	95	18,682
April.	803	662	67	74	22,457
May.	962	768	88	106	24,527
June.	1,076	804	113	159	28,547
July.	1,236	851	77	208	23,423
Aug.	1,078	839	78	161	24,493
Sept.	1,002	780	87	135	24,781
Oct.	1,074	826	84	164	24,816
Nov.	1,133	882	96	155	26,290
Dec.	1,233	937	119	177	29,242
Totals	11,494	8,857	1,008	1,629	293,085
1912 ..	6,996	5,256	745	995	224,436
1911 ..	4,956	3,653	577	731	177,656
1910 ..	4,856	3,710	488	658	182,289

Oklahoma.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	634	494	52	88	22,759
Feb.	550	425	41	84	20,481
March.	536	426	29	81	17,706
April.	705	597	54	54	20,886
May.	786	669	42	75	23,164
June.	889	679	81	129	26,976
July.	932	703	52	177	21,797
Aug.	864	687	41	136	22,695
Sept.	801	638	55	108	25,021
Oct.	842	662	50	130	22,514
Nov.	849	669	60	129	23,996
Dec.	926	701	86	139	27,270
Totals	9,314	7,341	643	1,330	272,935
1912 ..	5,982	4,718	444	820	213,217
1911 ..	4,445	3,466	364	515	173,138
1910 ..	4,379	3,622	201	547	179,973

Kansas.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	100	52	39	9	1,085
Feb.	90	55	23	14	1,495
March.	87	60	11	16	976
April.	98	65	18	15	1,568
May.	176	99	46	31	1,363
June.	187	125	32	30	1,541
July.	204	148	25	31	1,524
Aug.	214	153	36	25	1,748
Sept.	201	141	31	29	1,090
Oct.	232	164	34	34	1,782
Nov.	284	222	36	26	2,233
Dec.	307	236	33	38	1,972
Totals	2,180	1,518	364	298	18,977
1912 ..	1,012	536	301	175	11,219
1911 ..	511	187	208	116	4,518
1910 ..	486	88	287	111	2,316

Wells Drilled in Kansas.

[By years.]

	Wells.	Estimated production, barrels.
1905	1,488	15,224
1906	730	7,809
1907	486	1,286
1908	473	1,227
1909	510	1,438
1910	486	2,316
1911	511	4,518
1912	1,012	11,219
1913	2,186	18,977
Total	7,876	.....
Previous years	4,720	.....
Totals	12,596	.....

KANSAS DISTRICTS.

Wells Drilled in 1913.

County.	Comp.	Oil.	Gas.	Dry.	Prod.
Montgomery	877	599	176	102	5,026
Chautauqua	457	326	55	76	6,063
Wilson	148	41	58	49	360
Neosho	314	253	30	31	4,225
Allen	179	156	8	15	2,262
Franklin	58	53	1	4	606
Miami	94	78	10	6	348
Miscellaneous	53	12	26	15	87
Totals	2,180	1,518	364	298	18,977
1912	1,012	536	301	175	11,219

MONTGOMERY COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	48	21	24	3	277
Feb.	39	19	15	5	435
March.	34	24	4	6	286
April.	28	12	10	6	140
May.	59	38	10	11	395
June.	87	55	18	14	532
July.	90	74	9	7	574
Aug.	81	48	26	7	384
Sept.	81	55	17	9	372
Oct.	89	57	20	12	333
Nov.	115	92	13	10	680
Dec.	126	104	10	12	618
Totals	877	599	176	102	5,026
1912 ..	396	203	137	56	3,903

CHAUTAUQUA COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	23	16	4	3	470
Feb.	26	21	2	3	695
March.	23	15	3	5	254
April.	23	18	3	2	420
May.	45	30	4	11	510
June.	46	28	6	12	515
July.	51	34	6	11	440
Aug.	41	31	3	7	520
Sept.	54	40	5	9	525
Oct.	44	36	5	3	635
Nov.	30	21	6	3	564
Dec.	51	36	8	7	515
Totals	457	326	55	76	6,063
1912 ..	225	175	13	37	4,430

WILSON COUNTY.

1913.	Comp.	Oil.	Gas	Dry.	Prod.
Jan.	7	2	5	..	8
Feb.	6	1	2	3	50
March.	8	1	3	4	17
April.	2	1	..	1	25
May.	34	7	24	3	48
June.	9	4	3	2	30
July.	18	3	6	9	32
Aug.	13	4	3	6	48
Sept.	13	4	4	5	30
Oct.	17	7	3	7	42
Nov.	13	4	4	5	20
Dec.	8	3	1	4	10
Totals	148	41	58	49	360
1912 ..	171	..	..	..	...

NEOSHO COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	14	7	6	1	230
Feb.	11	6	3	2	235
March.	15	13	1	1	305
April.	32	21	5	6	630
May.	25	16	6	3	320
June.	21	21	..	..	265
July.	22	19	..	3	255
Aug.	42	41	..	1	468
Sept.	25	22	1	2	386
Oct.	33	26	2	5	490
Nov.	40	36	2	2	388
Dec.	34	25	4	5	337
Totals	314	253	30	31	4,225
1912 ..	115	..	..	..	...

ALLEN COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	5	4	..	1	80
Feb.	3	3	..	..	45
March.	3	3	..	..	45
April.	10	10	..	..	308
May.	9	5	2	2	72
June.	14	13	..	1	188
July.	13	10	2	1	145
Aug.	18	17	..	1	180
Sept.	18	17	1	..	312
Oct.	25	20	1	4	264
Nov.	26	24	1	1	302
Dec.	35	30	1	4	318
Totals	179	156	8	15	2,262
1912 ..	69	..	..	..	...

FRANKLIN COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	2	2	..	..	20
Feb.	3	3	..	..	35
March.	4	4	..	..	60
April.	3	3	..	..	45
May.	4	3	..	1	18
June.	3	3	..	..	30
July.	4	4	..	..	45
Aug.	11	10	..	1	136
Sept.	2	2	..	..	30
Oct.	5	4	..	1	32
Nov.	8	7	..	1	84
Dec.	9	8	1	..	58
Totals	58	53	1	4	606
1912 ..	26	..	..	..	...

MIAMI COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Oct.	16	13	2	1	60
Nov.	42	36	5	7	180
Dec.	36	29	3	4	108
Totals	94	78	10	12	348

MISCELLANEOUS.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan.	1	..	..	1	...
Feb.	2	..	1	1	...
March.	..	..	..	..	...
April.	..	..	..	..	...
May.	..	..	..	..	...
June.	7	1	5	1	5
July.	6	4	2	..	33
Aug.	8	2	4	2	9
Sept.	8	1	3	4	5
Oct.	3	1	1	1	10
Nov.	10	2	5	3	15
Dec.	8	1	5	2	10
Totals	53	12	26	15	87

OKLAHOMA DISTRICTS.

Wells Drilled in 1913.

District.	Comp.	Oil.	Gas.	Dry.	Prod.
Osage	651	525	58	68	26,610
Cherokee deep	3,314	2,782	238	294	56,713
Cherokee shal	1,339	1,149	34	156	14,165
Pawnee	286	201	15	70	13,010
Creek	2,646	1,839	202	606	75,689
Cushing	883	770	65	48	83,493
Kay county..	62	35	5	22	2,549
Miscellaneous..	133	40	26	67	707
Totals	9,314	7,341	643	1,330	272,935

CHEROKEE.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	340	284	23	33	7,584
Feb....	263	217	11	35	5,349
March..	257	227	10	20	5,044
April...	303	262	18	23	6,213
May....	450	368	24	38	7,512
June...	482	415	32	35	8,124
July....	522	435	27	60	6,146
Aug....	471	407	21	43	6,003
Sept....	403	338	20	45	6,585
Oct....	420	361	18	41	3,990
Nov....	370	312	18	40	4,410
Dec....	392	305	50	37	4,918
Totals	4,653	3,931	272	450	70,878
1912 ...	3,771	3,168	238	365	98,653
1911 ...	2,985	2,374	273	338	83,986
1910 ...	3,021	2,598	134	289	102,366

CHEROKEE, DEEP SAND.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	260	222	21	17	6,346
Feb....	200	176	10	23	4,567
March..	188	162	10	16	4,180
April...	195	174	10	11	4,728
May....	350	301	21	28	6,347
June...	362	310	30	22	7,008
July....	330	265	25	40	4,764
Aug....	337	291	20	26	4,181
Sept....	288	243	15	30	4,325
Oct....	294	251	16	27	2,874
Nov....	248	203	15	30	3,522
Dec....	253	184	45	24	3,872
Totals	3,314	2,782	238	294	56,713
1912 ...	2,836	2,395	195	246	82,639
1911 ...	1,674	1,277	224	173	40,228
1910 ...	1,333	1,220	118	95	38,643

CHEROKEE, SHALLOW SAND.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	80	62	2	16	1,239
Feb....	54	41	1	12	782
March..	69	65	..	4	864
April...	108	88	8	12	1,485
May....	80	67	3	10	1,165
June...	120	105	2	13	1,116
July....	192	170	2	20	1,382
Aug....	134	116	1	17	1,822
Sept....	115	95	5	15	1,260
Oct....	126	110	2	14	1,116
Nov....	122	109	3	10	888
Dec....	139	121	5	13	1,046
Totals	1,339	1,149	34	156	14,165
1912 ...	935	773	44	118	16,014
1911 ...	1,311	1,097	49	165	43,764
1910 ...	1,688	1,478	16	194	69,199

OSAGE.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	36	28	4	4	920
Feb....	40	30	4	6	915
March..	43	32	2	9	1,028
April...	57	45	8	4	1,326
May....	42	35	4	3	482
June...	39	31	5	3	820
July....	50	40	1	9	1,222
Aug....	65	50	5	10	1,472
Sept....	60	49	8	3	2,025
Oct....	65	56	4	5	5,328
Nov....	64	51	5	8	4,434
Dec....	90	78	8	4	6,638
Totals	651	525	58	68	26,610
1912 ...	492	411	20	61	24,755
1911 ...	500	430	23	47	38,636
1910 ...	269	233	9	27	20,925

PAWNEE.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	24	19	..	5	1,405
Feb....	18	16	..	2	965
March..	19	12	2	5	998
April...	30	19	7	4	1,272
May....	20	20	..	..	1,624
June...	40	29	..	11	1,682
July....	21	16	..	5	1,246
Aug....	20	10	2	8	481
Sept....	25	16	..	9	1,864
Oct....	15	12	..	3	180
Nov....	25	17	3	5	488
Dec....	19	12	1	6	806
Totals	286	201	15	79	13,010
1912 ...	283	224	11	48	23,386
1911 ...	172	129	5	38	14,130

CREEK NATION.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	148	97	18	33	4,485
Feb....	174	113	22	39	5,687
March..	170	120	12	38	6,832
April...	215	190	15	10	7,184
May....	210	185	5	20	7,108
June...	243	139	36	68	8,765
July....	230	127	15	88	3,987
Aug....	203	133	7	63	4,825
Sept....	188	133	15	40	6,977
Oct....	260	182	18	60	5,892
Nov....	298	208	24	66	7,024
Dec....	307	212	15	80	6,920
Totals	2,646	1,839	202	606	75,689
1912 ...	1,346	875	150	321	62,593
1911 ...	765	535	56	174	36,026
1910 ...	1,048	774	54	220	56,137

CUSHING.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	67	62	4	1	8,105
Feb....	53	49	3	1	7,506
March..	42	32	3	7	3,678
April...	72	65	4	3	4,623
May....	65	55	8	2	6,418
June...	73	64	6	3	7,538
July....	92	82	5	5	9,111
Aug....	88	84	2	2	9,876
Sept....	108	96	6	6	6,475
Oct....	62	44	8	10	6,984
Nov....	73	64	5	4	6,796
Dec....	88	73	11	4	6,324
Totals	883	770	65	48	83,493
1912 ...	100	79	12	9	10,665

KAY COUNTY.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	5	2	..	3	250
Feb....	..	..	..	..	..
March..	3	2	..	1	114
April...	8	5	..	3	130
May....	3	..	..	3	...
June...	2	1	..	1	50
July....	11	2	3	6	75
Aug....	1	1	..	..	15
Sept....	2	1	..	1	20
Oct....	2	2	..	..	30
Nov....	6	4	2	..	380
Dec....	19	15	..	4	1,485
Totals	62	35	5	22	2,549
1912 ...	87	40	22	25	3,830

MISCELLANEOUS.

1913.	Comp.	Oil.	Gas.	Dry.	Prod.
Jan....	14	2	3	9	10
Feb....	2	..	1	1	...
March..	2	1	..	1	10
April...	20	11	2	7	138
May....	6	3	1	2	20
June...	10	..	2	8	...
July....	6	1	1	4	10
Aug....	16	2	4	10	20
Sept....	15	5	6	4	75
Oct....	18	5	2	11	110
Nov....	13	4	3	6	134
Dec....	11	6	1	4	180
Totals	133	40	26	67	707

Mid-Continent Production in 1913.

The total production of the mid-continent field for the year 1913 was 65,746,858.97 barrels. The writer is ready to stand by these figures. They are the most complete and reliable ever made in an annual report of this field. They include the official statements furnished by the Prairie Oil and Gas Company, the Gulf Pipe Line Company, the Texas Company and the individual refineries in the field. This is the first time in the history of the field that all of the independent refineries and the Texas company have given a statement of the actual amount of oil used during the year. In addition to this it is estimated that 300,000 barrels of oil was shipped by others than those mentioned. The figures do not include the very large amount of oil used in the field for fuel purposes and of which no record whatever is kept by any one. In this connection it is pertinent again to suggest that a law ought to be created in every State requiring an accurate record at the court house of every well drilled, of every hole plugged, of every barrel of oil and every foot of gas produced, regardless of what disposition is made of it.

The runs of the Prairie Oil and Gas Company last year aggregated 38,720,241.97 barrels; of the Gulf Pipe Line Company, 7,590,800 barrels; of the Texas company, 7,013,167 barrels, and of the refineries, 12,122,650 barrels. The total output of the field to date has been 416,411,212.97 barrels. The runs of the three big pipe line companies aggregated 53,324,208.97 barrels, against independent runs of 12,422,650 barrels. It will be seen that the smaller concerns are becoming an important factor in the field. They are increasing rapidly. A little while ago these three pipe line companies were the only purchasing agencies in the field; now there are twenty-two others and they are taking about 45,000 barrels of oil a day at this time. The runs of the three pipe line companies in 1912 amounted to 45,214,971.98 barrels, an increase in 1913 of 8,110,000 barrels. The amount of oil taken by the independents in 1912 was 8,392,500 barrels, a gain of 4,050,000 barrels. The refineries in the field now own 967 miles of pipe lines to which are connected 8,568 wells. This is the first time it has been possible to make a statement of the amount of pipe lines owned by the refineries and the number of wells on the lines. The story presents a new phase of oil country evolution, and quite effectively disproves the statement of certain newspapers that producers will not sell crude to independents. It is true, however, that all of the small purchasers are paying a handsome premium, as high as 15 cents a barrel. Those who are able to select their crude find it profitable to pay the premium, as for instance the Cushing crude yields as high as 37 per cent. gasoline, while some grades in Northern Oklahoma and Kansas do not return more than 8 to 12 per cent. The Prairie Oil and Gas Company now owns 4,892 miles of pipe line, the Gulf company 574, and the Texas company about an equal mileage. The Gulf company has 2,715 connected wells and the Texas company 2,193 wells.

The daily average runs through these pipe lines during 1913 was 180,128.38 barrels. This seems to prove beyond a doubt that the runs of the latter part of the year were considerably over 200,000 barrels a day. The Prairie increased its runs during the year from 30,870,205.98 barrels a day to 38,720,241.97 barrels. The Gulf Pipe Line Company broke even with the previous year and the Texas company showed an increase of 182,401 barrels.

The total deliveries of the three big pipe line companies amounted to 49,571,447.17 barrels, a daily average of 135,737.16 barrels, against a total of 48,007,970.38 barrels or an average of 131,047.44 barrels the previous year. The deliveries of the three pipe line companies, however, were only 500,000 barrels more last than in 1911.

The stocks at the close of the year were 51,508,629.09 barrels, a net increase of 5,226,182.09 barrels. The Gulf Pipe Line Company was the only agency to decrease its reserve stocks, cutting them down to the amount of 150,000 barrels. The Texas company at the close of the year held 2,942,027 barrels in its farm tanks and 422,430 barrels at its Tulsa refinery. The Sapulpa Refinery has 190,000 barrels, which it purchased from the Laurel Oil and Gas Company in storage.

The following tables tell the story of production for the years:—

By Years.

	Barrels.
Prior to pipe line, 1899	442,379
1900	74,714
1901	179,151
1902	331,749
1903	1,071,015
1904	5,603,036
1905	12,454,818
1906	21,694,154
1907	35,610,346
1908	33,266,282
1909	28,773,727
1910	31,587,313
1911	34,671,789
1912	30,870,200
1913	38,720,242
Total	416,411,123

Pipe Line Runs by Years.

PRAIRIE OIL AND GAS COMPANY.

	Barrels.
Prior to pipe line, 1899	442,379
1900	74,714
1901	179,151
1902	331,749
1903	1,071,015
1904	5,603,036
1905	11,854,818
1906	21,194,154
1907	35,610,346
1908	33,266,282
1909	28,773,727
1910	31,587,313
1911	34,671,789
1912	30,870,200
1913	38,720,242
Total	274,250,906

GULF PIPE LINE.

	Barrels.
1907	5,424,569
1908	5,638,300
1909	6,728,490
1910	7,941,500
1911	8,218,700
1912	7,514,000
1913	7,590,800
Total	49,056,359

THE TEXAS COMPANY.

	Barrels.
1907	3,484,245
1908	5,371,000
1909	7,329,500
1910	7,513,000
1911	8,047,370
1912	6,830,766
1913	7,013,167
Total	45,589,048

INDEPENDENTS.

	Barrels.
Prior to 1906	600,000
1906	500,000
1907	1,642,500
1908	3,999,200
1909	5,175,550
1910	6,387,500
1911	8,395,000
1912	8,392,500
1913	12,422,650
Total	47,514,900

TOTAL STOCKS.

	Barrels.
Prairie Oil & Gas Co.	42,854,172.09
Gulf Pipe Line Co.	5,100,000.00
The Texas Co.	3,564,457.00
Sapulpa Refining Co.	190,000.00
Total, January 1, 1914	51,508,629.09

STOCKS INCREASED IN 1913.

	Barrels.
Prairie Oil & Gas Co.	3,946,725.09
The Texas Co.	1,239,457.00
Sapulpa Refining Co.	190,000.00
Total	5,376,182.09

STOCKS DECREASED IN 1913.

	Barels.
Gulf Pipe Line Co.	150,000.00
Net increase, 1913	5,226,182.09

1913 Recapitulation—Mid-Continent.

Total Runs.

PRAIRIE, GULF AND TEXAS PIPE LINES.

	Total bbls.	Daily avge.
January	4,157,372.75	137,063.51
February	3,977,950.99	142,069.32
March	4,469,233.12	144,178.32
April	4,412,083.18	147,067.41
May	4,611,122.44	148,746.27
June	4,350,428.80	145,014.59
July	4,391,248.33	141,653.37
August	4,180,660.60	134,859.21
September	4,336,499.33	144,530.31
October	4,707,172.30	151,844.36
November	4,785,920.60	159,530.79
December	4,944,516.53	159,500.21
Totals, 1913	53,324,208.97	146,328.80
Totals, 1912	45,214,971.98	123,993.55
Totals, 1911	50,937,850.08	139,528.35
Totals, 1910	47,041,812.08	128,931.64
Totals, 1909	42,831,416.61	117,346.00

Total Deliveries.

PIPE LINES.

	Total bbls.	Daily avge.
January	4,062,895.50	131,058.51
February	3,603,713.56	128,705.27
March	4,028,915.65	129,965.15
April	4,033,449.30	134,448.61
May	4,249,862.91	137,092.61
June	3,926,932.55	130,897.22
July	4,370,286.44	140,976.95
August	4,373,564.65	139,791.93
September	4,062,436.39	135,110.56
October	4,115,918.59	132,771.18
November	4,358,283.09	145,275.60
December	4,425,248.54	142,752.34
Totals, 1913	49,571,447.17	135,737.16
Totals, 1912	48,007,970.38	131,047.44
Totals, 1911	49,074,619.83	134,341.42
Totals, 1910	47,340,437.79	130,272.19
Totals, 1909	39,800,642.23	108,981.80

Prairie Oil and Gas Company.

RUNS.

	Total bbls.	Daily avge.
January	2,938,195.75	94,780.51
February	2,870,512.99	102,518.32
March	3,219,583.12	103,857.32
April	3,158,473.18	105,282.41
May	3,199,797.44	103,219.27
June	2,955,107.80	98,503.59
July	3,012,467.33	97,177.01
August	3,002,294.60	96,848.21
September	3,269,919.33	106,997.31
October	3,639,628.30	117,407.36
November	3,697,163.60	123,238.79
December	3,817,098.53	123,132.21
Totals, 1913	38,720,241.97	106,080.14
Totals, 1912	30,870,205.98	84,303.61
Totals, 1911	34,671,780.08	94,941.36
Totals, 1910	31,587,312.59	86,509.45
Totals, 1909	28,773,726.98	78,888.06

DELIVERIES.

	Total bbls.	Daily avge.
January	2,885,619.50	93,084.51
February	2,444,962.56	87,321.27
March	2,769,854.65	89,350.15
April	2,714,148.30	90,471.61
May	2,832,705.91	91,377.61
June	2,675,136.55	89,171.22
July	3,026,311.44	97,622.95
August	3,025,566.65	97,598.93
September	3,053,026.39	101,767.55
October	3,046,251.59	98,266.18
November	3,045,558.09	101,518.60
December	3,330,898.54	107,448.34
Totals, 1913	34,850,073.17	95,419.08
Totals, 1912	33,608,504.38	92,004.03
Totals, 1911	33,621,304.83	92,153.69
Totals, 1910	31,961,187.97	87,543.79
Totals, 1909	26,856,722.80	73,540.70

TANKED.

	Total bbls.	Daily avge.
January	52,576.25	1,696.01
February	425,517.43	15,197.05
March	449,728.47	14,507.37
April	444,324.88	14,810.83
May	367,091.53	11,841.66
June	279,971.25	9,332.37
September	156,992.94	5,199.76
October	593,376.71	19,141.18
November	651,605.51	21,720.19
December	486,190.99	15,683.87
Totals, 1913	3,906,384.96	12,913.02
Totals, 1912	53,121.47	1,713.60
Totals, 1912	2,139,844.33	13,906.31
Totals, 1910	1,270,506.94	8,405.71
Totals, 1909	2,028,330.22	6,159.99

DREW ON STOCKS.

	Total bbls.	Daily avge.
July	13,844.41	446.58
August	23,272.05	750.72
Totals, 1913	37,116.16	598.60
Totals, 1912	2,851,419.87	7,843.63
Totals, 1911	1,089,351.08	5,146.93
Totals, 1910	1,651,410.74	7,775.51
Totals, 1909	111,326.04	3,591.16

STOCKS.

	Barrels.
January 1	37,907,447.05
February 1	38,890,070.50
March 1	39,337,937.37
April 1	39,859,925.10
May 1	40,622,506.04
June 1	41,207,419.69
July 1	41,653,325.84
August 1	41,751,342.24
September 1	41,747,748.26
October 1	41,607,490.66
November 1	41,991,974.74
December 1	42,548,553.73
January 1, 1914	42,834,172.09

Prairie's Kansas Runs.

1913.	Barrels.
January	121,000
February	121,000
March	136,000
April	144,000
May	142,000
June	141,000
July	164,000
August	157,000
September	164,000
October	175,000
November	191,000
December	229,000
Total	1,875,000
Others, estimated	975,200
Total	2,850,200

The Texas Company.

(Oklahoma Division.)

1913.	Barrels Runs.	Barrels average. Daily
January	630,177	23,283
February	547,438	19,551
March	620,650	20,021
April	623,610	20,787
May	707,625	22,827
June	711,321	23,711
July	690,581	22,277
August	545,966	17,611
September	475,580	15,833
October	434,534	14,437
November	458,757	15,292
December	553,918	17,868
January 1, 1914	.....	.....
Totals, 1913	7,013,167	19,458
1912	6,830,766	.....
1911	8,047,370	.....
1910	7,513,000	.....
1909	7,329,500	.....

1913.	Barrels Crude stocks.	Fuel oil stocks, Tulsa Refinery.
January	3,296,951	194,613
February	3,202,668	237,616
March	3,168,039	263,134
April	3,126,203	239,279
May	3,156,051	203,599
June	3,285,516	217,639
July	3,301,070	230,011
August	3,358,220	150,129
September	3,410,745	114,774
October	3,292,003	231,393
November	2,965,722	333,706
December	2,910,466	422,430
January 1, 1914	2,942,027	.....
Totals, 1913	.....	.....

TEXAS DELIVERIES.

	Total barrels.	Daily average.	Total stocks.
January	588,216	18,974	3,491,564
February	598,718	21,384	3,440,284
March	629,761	20,315	3,431,173
April	689,301	22,977	3,365,482
May	713,457	23,015	3,359,650
June	567,796	18,926	3,503,175
July	655,775	21,154	3,537,881
August	673,598	21,793	3,523,396
September	358,410	11,613	3,525,519
October	449,667	14,505	3,523,396
November	682,725	22,757	3,299,428
December	520,850	16,804	3,332,496
Total	7,130,274	19,518	.....
Grand total to date			416,411,212.97

Gulf Pipe Line Company.

OKLAHOMA.

RUNS.

1913.	Total barrels.	Daily average.
January	580,000	19,000
February	560,000	20,000
March	629,000	20,300
April	630,000	21,000
May	703,700	22,700
June	684,000	22,800
July	688,200	22,200
August	632,400	20,400
September	651,000	21,700
October	620,000	20,000
November	630,000	21,000
December	573,500	18,500
Totals, 1913	7,590,800	20,800
1912	7,514,000	20,525
1911	8,218,700	22,233
1910	7,941,500	21,858
1909	6,728,490	18,434

DELIVERIES.

1913.	Total barrels.	Daily average.
January	580,000	19,000
February	560,000	20,000
March	629,300	20,300
April	630,000	21,000
May	703,700	22,700
June	684,000	22,800
July	688,200	22,200
August	632,400	20,400
September	651,000	21,700
October	620,000	20,000
November	630,000	21,000
December	573,500	18,500
Totals, 1913	7,591,100	20,800
1912	7,508,700	20,517
1911	7,680,900	21,042
1910	7,941,500	21,858
1909	6,187,060	16,950
Oklahoma stocks, January 1, 1914	5,100,000	.....

Total Production of Field.

1913.

	Barrels.
Prairie Oil and Gas Co.	38,720,241.97
Gulf Pipe Line Co.	7,590,800.00
Texas Company	7,013,167.00
Refineries et al.	12,422,650.00
Total, 1913	65,746,858.97
Total previous year	350,664,354.00

Mid-Continent Stock by Years.

JANUARY 1—BARRELS.

Pipe Line.	1908.	1909.	1910.
Prairie	32,024,422	38,939,234	40,644,660
Gulf	3,940,122	4,503,000	5,377,670
Texas	2,783,745	1,500,000	4,075,000
Producers	9,525,000	9,966,000	8,541,381
Totals	48,273,289	54,928,233	58,638,611
Pipe Line.	1911.	1912.	1913.
Prairie	40,275,144	41,512,204	38,907,447
Gulf	5,377,570	5,815,370	5,250,000
Texas	2,161,500	2,436,455	2,125,000
Producers	5,500,000	958,150	.....
Totals	53,313,214	50,822,178	46,282,447
Pipe Line.			1914.
Prairie			42,854,172.00
Gulf			5,100,000.00
Texas			3,364,457.00
Producers			*190,000.00
Total			51,508,629.00

*Sapulpa Refining Co.

Last Six Years Compared.

WELLS DRILLED AND ESTIMATED PRODUCTION—MID-CONTINENT.

	1908		1909	
	Com.	Barrels.	Com.	Barrels.
January	258	10,100	334	13,110
February	176	7,435	327	12,783
March	248	10,540	388	15,057
April	266	10,359	406	15,848
May	311	16,835	405	15,250
June	249	11,050	368	13,715
July	265	15,095	331	15,002
August	306	19,083	258	10,939
September	358	14,921	246	11,672
October	306	16,940	284	11,297
November	323	13,797	214	10,135
December	425	17,502	289	11,439
Totals	3,494	164,257	3,850	154,307
	1910		1911	
	Com.	Barrels.	Com.	Barrels.
January	290	10,330	283	12,343
February	315	11,415	432	17,847
March	346	13,118	477	21,609
April	520	15,566	530	18,522
May	382	12,704	558	18,811
June	500	19,078	428	11,636
July	374	14,832	411	13,326
August	488	25,393	381	10,400
September	424	15,178	378	13,421
October	426	15,890	347	14,841
November	362	12,938	366	11,861
December	429	15,907	365	12,979
Totals	4,856	182,289	4,956	177,656
	1912		1913	
	Com.	Barrels.	Com.	Barrels.
January	284	10,064	734	23,844
February	359	11,103	640	21,976
March	362	12,015	623	18,682
April	497	12,391	803	22,457
May	609	17,578	962	24,527
June	659	17,837	1,076	28,547
July	578	24,059	1,136	23,421
August	698	32,147	1,078	24,493
September	738	22,722	1,002	24,781
October	636	17,234	1,074	24,816
November	816	23,587	1,133	26,299
December	740	23,609	1,233	20,242
Totals	6,996	224,426	11,494	293,085

Gas Wells Drilled.

Prior to 1905, estimated	610	732
1905	425	579
1906	446	501
1907	482	392
1908	440	390
1909	489	500
1910	488	658
1911	572	731
1912	745	995
1913	1,008	1,629
Totals	5,696	7,116
Exhausted and abandoned		{ 5,696 / 8,467
Non-oil producing		21,279
Oil producing		31,133
Total wells drilled		53,412

Iron Storage Tanks.

PRAIRIE OIL AND GAS CO.—JANUARY 1, 1914.

	1910.	1911.	1912.	1913.	1914.
Kansas	330	323	330	330	332
Osage	20	14	14	21	21
Oklahoma	781	800	857	857	850
Mo., Ia., Ill.	26	26	26	26	31
Arkansas	...	6	6	6	6
Totals	1,157	1,169	1,233	1,240	1,240

DISTRIBUTION.

	1910.	1911.	1912.	1913.	1914.
Trunk Line	9	9	9	9	9
Humboldt	28	28	28	28	28
Neodesha	126	119	126	126	126
Caney	167	167	167	167	167
Peru	...	...	...	...	2
Total Kansas	330	323	330	330	332
Ramona	237	237	237	237	236
Copan	107	107	107	107	107
Jenks	153	153	150	150	149
Huston (Glenn)	32	32	32	32	32
Muskogee	31	31	31	31	28
Morris	41	41	41	41	41
Bought of producers	136	150	205	205	201
Cleveland	...	27	27	27	27
Miscellaneous	16	22	27	27	29
Total Oklahoma	753	800	857	857	850

TOTAL IRON STORAGE TANKS—JANUARY 1, 1914.

	No.	Capacity.
Prairie Oil and Gas Co.	1,240	45,375,000
Gulf Pipe Line Co.	199	8,845,000
Texas Company	73	3,300,000
Totals	1,512	57,520,000

New Pools in 1913.

	Township-Range.
Healdton	3-3
Wicey	16-13-14
North Cushing	18-6-7
Boston	21-7
Owasso	21-13
Wann	28-14
Collinsville	22-14
Newkirk	27-2
Allen	23-5-8
Lost City	19-12

Number of Wells on Prairie Lines.

(As of January, 1914.)

District.	1911.	1912.	1913.	1914.
Kansas	1,315	1,531	1,838	2,503
Osage	894	1,293	1,263	1,975
Cherokee—				
Deep	3,214	3,734	4,404	6,685
Shallow	6,014	5,288	4,206	3,543
Creek	1,000	1,000	1,432	2,324
Cleveland	170	281	451	640
Totals	12,703	13,127	13,774	17,657
On other lines	4,644	7,129	10,605	13,476
Total wells	17,347	20,256	24,379	31,133
Gas, Dry and Exhausted	12,619	14,666	17,539	21,279
Grand total	29,966	34,922	41,918	53,412

CONNECTED WELLS IN KANSAS.

	1911.	1912.	1913.	1914.
Chautauqua Co.	737	840	965	1,017
Montgomery Co.	259	290	429	715
Wilson Co.	209	221	183	187
North Kansas	110	180	261	674
Totals	1,315	1,531	1,838	2,593

Mid-Continent Refineries.

KANSAS.

	Barrels crude actually used in 1913.
Cudahy Refining Co., Coffeyville, Kan.	1,344,000
Petroleum Products Co., Independence	1,082,340
National Refining Co., Coffeyville	900,000
Kansas Oil Refining Co., Coffeyville	576,000
Chanute Refining Co., Chanute	487,020
Kansas Co-operative Refining Co., Chanute	101,764
Kansas City Ref. Co., Kansas City, Kan.	33,128
Miller Pet. Ref. Co., Humboldt	100,000
Niotaze Ref. Co., Niotaze	134,885
Uncle Sam Oil Co., Cherryvale	126,700
Great Western Refinery Co., Erie	211,764
Eastern Kansas Oil Co., Moran	112,000
Kanotex Refining Co., Caney	200,000
Kansas Crude Oil Co., Chanute	5,000
Rollins Refining Co., Rollins	4,000
Wilhoit Refining Co., Joplin, Mo.	72,160
Total	5,510,743

OKLAHOMA.

Vinita Refining Co., Vinita	1,258,450
Sapulpa Refining Co., Sapulpa	751,787
Indiahoma Refining Co., Okmulgee	557,500
American Refining Co., Okmulgee	648,380
Chelsea Refining Co., Chelsea	480,000
Cosdon & Co., Tulsa	60,000
Phœnix Refining Co., Tulsa	225,000
Constantin Ref. Co., Tulsa	276,500
Waters-Pierce Co., Tulsa	335,000
Uncle Sam Oil Co., Tulsa	130,000
Muskogee Ref. Co., Muskogee	245,000
Cudahy Ref. Co., Muskogee	122,550
Fonca Ref. Co., Ponca City	367,200
Cosdon & Co., Bigheart	228,640
Cosdon & Co., Cushing	142,300
Consumers Ref. Co., Cushing	328,000
Oklahoma Ref. Co., Oklahoma City	140,000
Cleveland Pet. & Ref. Co., Cleveland	143,500
Midland Ref. Co., Coalton	112,300
Arkansas Ref. Co., Fort Smith, Ark.	60,000
Total	6,611,907
Grand total	12,122,650
Standard Oil Co. plants—	
Sugar Creek Refinery	6,540,000
Neodesha Refinery	2,575,500

Mid-Continent Pipe Lines.

KANSAS REFINERIES.

	miles.	Wells nected.
	No.	con-
Petroleum Products Co.	163	1,308
Cudahy Oil Co.	150	1,623
National Refining Co.	60	650
Kansas Oil Refining Co.	60	760
Kansas Co-operative Co.	6	22
Chanute Refining Co.	40	175
George C. Priestley & Co.	37	180
Great Western Refining Co.	26	11
Kanotex Ref. Co.	23	68
Eastern Kansas Oil Co.	3	78
Kansas Crude Oil Co.	4	12
Rollins Ref. Co.	6	30
Totals	578	4,917

OKLAHOMA REFINERIES.

	No. miles.	Wells con- nected.
Vinita Ref. Co.	40	2,295
Muskogee Ref. Co.	25	145
Sapulpa Ref. Co.	34	163
Chelsea Ref. Co.	25	450
Phœnix Ref. Co.	20	58
Constantin Ref. Co.	20	50
Waters-Pierce Co.	67	80
Cleveland Pet. & Ref. Co.	4	18
Ponca Ref. Co.	18	70
Cosdon & Co.	70	125
Indianhome Ref. Co.	22	55
American Ref. Co.	18	46
Shaffer Ref.	16	98
Pierce-Fordyce Co.	10	...
Totals	389	3,651
Prairie Oil and Gas Co.	4,892	17,659
Gulf Pipe Line Co.	574	2,715
Texas Company	*384	2,193
Grand total	7,017	31,133

*Estimated.

Mid-Continent Lubricating Plants.

Petroleum Products Co.	Independence, Kan.
Great Western Refining Co.	Erie, Kan.
National Refining Co.	Coffeyville, Kan.
Kanotex Refining Co.	Niotaze, Kan.
Cudahy Oil Co.	Coffeyville, Kan.
American Refining Co.	Okmulgee, Okla.
Cosdon & Co.	Bigheart, Okla.
Waters-Pierce Co.	Tulsa, Okla.
Arkansas Refining Co.	Fort Smith, Ark.

REFINERIES OWNING OWN DISTRIBUTING STATIONS.

National Refining Co.	Coffeyville, Kan.
Kansas Refining Co.	Chanute, Kan.
Uncle Sam Oil Co.	Cherryvale, Kan.
Kanotex Refining Co.	Caney, Kan.
Cudahy Oil Co.	Coffeyville, Kan.
Muskogee Refining Co.	Muskogee, Okla.
Arkansas Refining Co.	Fort Smith, Ark.

TANK CARS OWNED BY MID-CONTINENT SHIPPERS

Glenn Pool Tank Co.	309
Petroleum Products Co.	159
Chanute Refining Co.	107
Ponca Refining Co.	70
Miller Pet. Ref. Co.	18
Great Western Refining Co.	29
Eastern Kansas Ref. Co.	9
Uncle Sam Oil Co.	60
Sapulpa Refining Co.	63
Muskogee Refining Co.	29
Constantin Refining Co.	5
Cosdon & Co.	38
American Ref. Co.	25
Kanotex Refining Co.	25
High Grade Oil Co.	75
Arkansas Refining Co.	4
Oklahoma Refining Co.	21
Vinita Refining Co.	95
Chelsea Ref. Co.	65
Kansas City Oil Co.	26
Kansas Oil Refining Co.	98
Okmulgee Refining Co.	25
Mutual Oil Co.	20
Mid-continent Oil Ref. Co.	15
Commercial Transit Co., Coffeyville	28
Webster Ref. Co.	6
C. A. Stannard	8
Total	1,437

Refinery Notes.

The Ponca Refining Company has 50 wells on its three miles of pipe line from its plant at Ponca City to the local field and is building fifteen miles of line to the Newkirk pool to connect to twenty more wells.

The Great Western Refinery at Erie, Kan., owns 11 producing wells of its own in the local field.

The Eastern Kansas Refining Company, independent and flourishing. Its management is long headed. While others were down in the dumps during the depression it was developing a fine lease at Moran, then considered valueless by the fraternity. Now it has 63 producing wells and its own pipe line and is in clover.

The Waters-Pierce Company completed one of the largest refineries in the field at Tulsa toward the close of the year. It will actually use 7,000 barrels of crude a day.

The Sapulpa Refining Company is one of the very substantial institutions in the field. It has 190,000 barrels of crude in storage.

George C. Priestley & Co., in May, 1913, acquired the old Sunflower State pipe line from the Niotaze refinery to Chautauqua county, rebuilt it and is now supplying the Niotaze refinery with over 600 barrels a day and has just made a contract to supply the Kanotex Refinery at Caney with 500 barrels a day, building a pipe line to Caney for that purpose. There are 180 wells on this line.

The Kanotex Refining Company owns a twenty-mile line from Caney to its Dewey wells and a ten-mile line to the Ramsey pool. It gets 100 barrels a day from the former and 350 barrels a day from the latter. Part of its own production it is selling to the Prairie. The Ramsey output is declining rapidly. At present the Kanotex is shipping crude in from Cushing.

Cushing crude yields as high as 37 per cent. gasoline and quite naturally finds its way to more refineries than does the product of any other pool in the mid-continent field.

The Miller Petroleum Refining Company succeeded the Humboldt Refining Company. Miller Brothers leased the Niotaze refinery for a skimming plant while it was in the hands of receivers and did so well they decided to engage regularly in the business. They have enlarged the Humboldt plant.

The Cosden refinery at Cushing was built last June by Brown & Jones and later sold. It now is using 1,280 barrels of crude a day and is installing two new stills and building additional storage.

There are three Cosdon refineries—Bigheart, Tulsa and Cushing—and they are doing well. The products are principally shipped abroad. Now own seventy miles pipe line, but will have 170 miles by March, 1914. The Tulsa plant was completed in December, with a daily capacity of 6,000 barrels. It is now using 3,500 barrels a day. A wax plant is being built.

Mid-continent refineries have organized an exporting company and are expecting good results. There is a fine market, it is claimed, for them in Europe.

The Chelsea refinery is one of the stable plants because of owning production from 10 wells of its own and its own pipe line system.

More big refineries were built in 1913 than in any other year. These plants are now a very important factor in the field.

The Standard Oil Company spent $500,000 remodeling its Neodesha refinery to the tower still method of making motor spirits. It is spending $1,500,000 on its Sugar Creek plant. Its Wood River plant at Alton, Ill., and its Whiting plants have been remodeled.

The price of gasoline has been declining in the mid-continent field, dropping three cents toward the close of the year. The Independent plants have 1,00,000 barrels of gasoline in storage. This is the most they have ever carried. The Standard also has a surplus, besides several million barrels of fuel oil which it proposes to redistill under the new system of making motor spirits and by which it expects to reduce equally as much as it secured in the first treatment. This is one of the things that is changing conditions in this field. No matter what others may think the new pressure method of making gasoline will double the amount of by-products from the same quantity of crude. That means practically doubling the well production.

Formerly the Standard averaged about 19 per cent. gasoline from mid-continent crude. Now it will get 40 per cent. or more. It will also get twice as much kerosene as formerly. The price of crude will do mighty well to remain firm at $1.03 during 1914.

The Vanita Refining Company (Millikin) has been growing rapidly the past year. It has been adding wells to its pipe line by the score lately. It has over 2,000 connected wells.

The Petroleum Products Company at Independence is a big concern. It owns a pipe line system down into Oklahoma and has 350 connected wells in the Wayside pool alone.

During the year Tyrell and Greenlees purchased the Kansas City Refining Company's plant at Kansas City, Kan., and are now operating it.

There is a very complete refinery at Fort Smith, Ark., known as the Arkansas Refining Company. It makes wax and lubricating oils as well as gasoline, kerosene and gas and fuel oils; has its own distributing stations; ships crude in from Muskogee, paying 20 cents premium and 8 cents freight.

The Indiahoma Refining Company at Okmulgee is a flourishing concern and is branching out. It is now building additional storage tanks. Last year it used 557,500 barrels of crude. It owns its own pipe line system.

There are 8,568 wells connected to the pipe lines furnishing crude to mid-continent independent refineries. There are 31,133 producing wells in the field, of which 17,657 are connected to the Prairie lines.

Casinghead Gasoline.

MID-CONTINENT FIELD, JANUARY 1, 1914.

Plant.	Gallons capacity.
D. W. Franchot & Co.—	
Muskogee	1,000
Kiefer	1,000
Chestnut & Smith—	
Muskogee	700
Eastern	1,100
Andrew B. Self	700
Corbray	1,200
Kiefer	1,000
Graves	4,500
Spring	500
Oklahoma Petroleum and Gasoline Company (twelve plants)	4,350
Laurel, Keystone, Big Jack, Glicrease, Vicmar, Muskogee, Pulaski, Grand, Booth, Taft, March.	
Henderson & Co.—	
Alluwe	4,000
Childers	800
C. B. Shaffer, Cushing	350
Brown & Jones, Cushing	800
Natural Gasoline Production Co., Cleveland	500
Blair Oil & Refining Co., Muskogee	500
Whiteturkey Oil Co., Dewey	150
Greenlees & Co., Alluwe	1,500
J. A. Hull & Co., Taneha	250
P. F. Smith & Co., Taneha	250
C. A. Wall Gasoline Co., Coalton	180
Bradstreet & Co., Muskogee	150
Oklahoma Natural Gasoline Co., Mounds	1,200
Gulf Pipe Line Co., Glenn pool	275
Quaker Oil Co., Glenn pool	1,300
R. Downing & Co., Glenn pool	3,000
Vulcan Oil & Gas Co., Chautauqua Springs	100
Riverside Western Oil Co., Glenn pool	235
Frank Brown, Muskogee	325

NEW PLANTS BUILDING.

Plant.	Gallons capacity.
Golden Gasoline Co., Bartlesville	450
Riverside Western Oil Co., Creek	...
Bartlett et al., Bartlesville	600
Smith & Chestnut, Hamilton Switch	600
Chestnut & Fitzgerald, Watkins	350
R. Downing & Gillespie, Glenn pool	1,000
Chicago Gasoline Co., Okmulgee	...

Natural Gasoline Notes.

The production of natural gasoline in the mid-continent field in 1913 is estimated at 4,265,000 gallons, valued at approximately $405,175.

Mid-continent casinghead gasoline plants vary in cost from $3,500 to $35,000. It is estimated $675,000 is invested in the industry in this field and many other plants are proposed.

The price of casinghead gasoline declined last year with regular gasoline, now commanding 8.5 cents a gallon. In Kansas regular gasoline is selling from Standard wagons at 13.7 cents.

There are two large purchasing agencies in the field, D. W. Franchot & Co., and the Western Oil Company (Peterson). These handle practically the entire output.

Gas is secured on both a royalty and a per foot basis. Some well owners are now installing their own plants. There is only one safe way to determine whether your gas will reduce gasoline and that is a practical test, which costs about $100. Chemical tests are not accurate or reliable.

The loss in weathering is often as much as 60 per cent. The average yield on the Gilcrease lease in the Glenn pool is 5½ gallons.

D. W. Fanchot & Co., pipe blending naphtha from Kiefer to eight plants in the Glenn district, through a 2-inch line and transport the blended product from the field to the Kiefer station through a 3-inch line.

The highest gravity casinghead gasoline in the field is 114 at Muskogee. Lower the gravity, less the loss in blending. Three to four cents a thousand feet is paid for casinghead gas.

Gasoline cannot be made from dry gas. It must come from the same sand the oil comes from.

Gas may test as high as 13 gallons to the thousand, but it is impossible to market this amount owing to the loss in weathering.

The total production of casinghead gasoline in the mid-continent field in 1912 was 1,575,644 gallons, valued at $99,626. The output in 1911 was 388,058 gallons, valued at $20,975.

UNITED STATES INDIAN AGENCY.

MUSKOGEE.

There are 101,216 Indians in Oklahoma, of which 60,000 are minors; the Cherokees leading with 41,696 and the Choctaws second with 26,730.

One-third of the Indian population is still restricted and under the supervision of the Interior Department.

An oil inspector, with assistants, has supervision over oil and gas operations on Indian lands, under the direction of the department. During 1913 it is estimated 49,176,000 barrels of oil was sold from land owned by the Five Civilized Tribes.

The Union agency at Muskogee reports that as one of the results of the

steady advance in the price of crude there are now 22 pipe lines and refineries in Oklahoma purchasing oil instead of three, as formerly.

The year 1913 was the most active the department has ever known in the matter of lease taking. More leases were presented for consideration in 1913 than during three years next preceding—4,805 leases and 1,190 assignments. Up to the close of the fiscal year of 1913 a grand total of 28,526 oil and gas leases had been filed. There are now 1,004 oil and gas leases pending before the department.

"For several years," says the Indian agent, "producers were begging pipe line companies to run their oil; now they are being paid a premium of 2 to 10 cents a barrel for it." There's your law of supply and demand.

Indians are now receiving a fixed royalty from the manufacture of casing-head gasoline.

There are 9,198 individual lease accounts before the department.

Because so many Indians waste their money when it is paid them in large sums the department now gives them allowances in proportion to their incomes, for ordinary expenses. The remainder is used to improve their farms and homes.

The sale of oil from lands of the Five Civilized Tribes in fiscal year 1913 exceeded the previous year by 13,000,000 barrels. This is a pretty positive reply to those who have persisted in the statement that there was no occasion for the over-production scarce. The above figures apply only to Indian land production.

During 1913 the department exacted and collected additional bonus than was being paid Indians for leases before the leases would be approved $106,000 The department believes this was a service to the Indian, and the producers think it was unjust in very many instances to them. The work of the department is to look after the interests of the Indian.

The department now requires that notice shall be given when wells on Indian lands are started and when completed.

During the year the department introduced successfully the mudladen or lubricating process of shutting in gas found above the oil sand, and thus conserve this valuable product, which has heretofore been permitted to blow off. Knowledge of how to successfully confine great gas pressure and volume in its own stratum will prove very valuable to operators in the future.

Some Indians are becoming very rich from oil royalties. One Creek Indian leased his 160 acres and in January, 1913, his income therefrom was $8,830.39; February, $12,013.33; March, $9,414.61. A Creek minor with a like acreage received $5,581.22 in January, $3,608.67 in February and $3,317.48 in March. A Cherokee Indian in January received from an 80-acre tract $1,350 in January, $1,589 in February and $1,478 in March.

During the year the agency handling 6,237 probate cases, disbursed to individual Indians $1,184,016.35, saving the Indians, it is estimated over $667,000.

Receipts and disbursements from oil and gas royalties during the fiscal year 1913:— Received, $1,496,179.31; paid Indians, $1,301,362.99.

Receipts and Disbursements on Account of Oil Leases.

Fiscal year.	Receipts.	Disbursements.
1904	$1,300.00	.....
1905	91,624.00	$61,931.38
1906	323,555.40	339,279.01
1907	775,489.15	679,347.45
1908	1,692,627.55	1,485,075.26
1909	1,813,460.28	1,802,893.20
1910	1,420,894.97	1,301,508.99
1911	1,365,826.52	1,191,997.18
1912	1,134,432.34	1,123,964.08
1913	1,496,170.31	1,301,362.99
Totals	$10,115,380.92	$9,487,859.54

Sales of Oil, Fiscal Years 1907-1913.

	Barrels.
1907	21,717,000
1908	41,101,000
1909	40,210,000
1910	44,221,000
1911	41,053,000
1912	35,106,000
1913	49,176,323
Total	282,584,323

Price Paid Indians for Oil.

	1904.	1905.	1906.	1907.	1908.	1909.
Jan.	$1.20	$0.77	$0.52	$0.39	$0.41	$0.41
Feb.	1.15	.70	..	.40	..	..
March.	1.06	..	..	.41	..	..
April.	1.00	.68	..	..	..	..
May.	.97	.57	..	..	..	..
June.	1.03	.56	..	..	..	.38
July.	.95	.59	..	..	..	.35
Aug.	.90	..	.48	..	..	..
Sept.	..	.62	.39	..	..	..
Oct.	..	..	..	..	..	..
Nov.	.87	..	..	..	..	..
Dec.	..	..	..	..	..	..
	1910.	1911.	1912.		1913.	
Jan.	..	$0.44	$0.53–.55–.57		$0.86–.88	
Feb.	..	..	.60		..	
March.	$0.38	..	..		..	
April.	..	..	.62–.64		..	
May.	..	.46	.66–.68		..	
June.	..	.48	..		..	
July.	..	..	.70		.93–.98	
Aug.	..	..	..		1.03	
Sept.	.40	.50	..		..	
Oct.	..	..	..		..	
Nov.	.42	..	.73–.76		..	
Dec.	..	..	.78–.80–.83		..	

Department's Estimated Daily Average Output in Indian Districts, June, 1913.

	Barrels.
Cherokee, deep sand	55,014
Cherokee, shallow sand	15,795
Muskogee	1,221
Cushing	20,000
Glenn pool extension	25,557
Bald Hill	2,887
Morris	7,991
Hamilton Switch	2,557
Schulter-Henryetta	4,268
Red Forks-Jenks	1,906
Total	135,196

Sales of Oil from Indian Lands, 1907-1913.

	1907. Barrels.	1908. Barrels.	1909. Barrels.	1910. Barrels.
July	980,000	3,226,000	3,442,000	3,092,000
Aug.	930,000	3,580,000	3,292,000	3,802,000
Sept.	925,000	3,675,000	3,178,000	3,739,000
Oct.	1,265,000	4,270,000	3,407,000	3,578,000
Nov.	1,250,000	3,845,000	3,138,000	3,654,000
Dec.	1,365,000	3,565,000	3,380,000	3,519,000
Jan.	1,595,000	3,340,000	3,284,000	3,659,000
Feb.	1,707,000	3,200,000	3,108,000	3,226,000
March	2,395,000	3,610,000	3,376,000	3,806,000
April	2,970,000	3,450,000	3,292,000	4,448,000
May	3,154,000	2,875,000	3,503,000	3,815,000
June	3,150,000	2,305,000	3,830,000	3,903,000
Totals	21,717,000	41,101,000	40,210,000	44,221,000

	1911. Barrels.	1912. Barrels.	1913. Barrels.
July	3,568,000	3,145,000	3,713,823.72
Aug.	3,428,000	3,129,000	3,901,260.79
Sept.	3,307,000	3,045,000	3,733,841.62
Oct.	3,242,000	3,107,000	4,126,743.44
Nov.	3,125,000	2,896,000	3,818,133.80
Dec.	3,056,000	2,912,000	4,137,502.04
Jan.	3,021,000	2,733,000	4,083,411.33
Feb.	2,847,000	2,660,000	3,906,294.37
March	4,941,000	2,864,000	4,365,991.23
April	3,854,000	2,762,000	4,342,250.50
May	3,447,000	3,069,000	4,577,905.05
June	3,249,000	2,855,000	4,469,205.45
Totals	41,053,000	35,106,000	49,176,323.34

Natural Gas in Mid-Continent Field.

Company.	Number of consumers.
Kansas Natural Gas Co.	142,767
Wichita Natural Gas Co.	23,488
Quapaw Gas Co.	10,731
Oklahoma Natural Gas Co.	16,939
Caney River Gas Co.	7,549
Others in Kansas	13,369
Others in Oklahoma	5,380
Total	220,423

KANSAS NATURAL GAS CO.'S CONSUMERS

	Number of consumers.
Field lines—	
Independence City	1,045
Elk City	212
Caney	729
Parsons	3,338
Coffeyville	3,015
Independence Field	963
Southern trunk line—	
Allamont	206
Oswego	494
Columbus	666
Scammon	227
Weir City	256
Cherokee	162
Galena and Empire City	880
Pittsburg	2,522
Carl Junction	346
Joplin	5,590
Oronogo	324
Lead and Zinc district	1,312
Liberty	104
Main line taps	46
Kansas City sixteen-inch line—	
Wellsville and Le Loup	282
Edgerton	118
Gardner	205
Lenexa	116
Merriam and Shawnee	212
Kansas City, Kan.	17,277
Kansas City, Mo.	56,685
Farmers' lines	271
Olathe	826
Main line taps	209
Northern trunk line—	
Deerfield	13
Fort Scott	1,759
Colony	173
Welda	49
Richmond	115
Princeton and Selpio	75
Ottawa	1,888
Baldwin	440
Lawrence	3,392
Topeka	10,959
Tonganoxie	241
Leavenworth	3,327
Atchison	2,453
Weston, Mo.	294
St. Joseph, Mo.	11,253
Moran	189
Thayer	182
Farmers' lines	72
Nevada	672
Gunn P. L. Co.	14
Main line taps	308
Bronson	180
Total	136,684
Street lights	6,083
Total	142,767

OTHERS IN KANSAS.

	Number of consumers.
Independence—Kaugan Gas Co.	1,566
Iola—Municipal plant	2,487
Chanute—Municipal plant	2,365
Cherryvale—S. H. Hale	1,286
Neodesha—S. H. Hale	1,169
Altoona—S. H. Hale	367
Sedan—Sedan Gas Water Co.	248
Peru	115
Others in Kansas	3,746
Total	13,369

NUMBER CONSUMERS, QUAPAW GAS CO.

	Number of consumers.
Bartlesville	2,373
Field consumers	120
Vinita	854
Miami	494
North Miami	35
Welch	135
Blue Jacket	42
Holtonville	148
Lincolnville	13
Main line, Oklahoma	2
Labette Gas Co., Kansas	560
Baxter Springs, Kan.	205
Carterville, Mo.	656
Webb City, Mo.	2,148
W. C. & Cart. N. Des.	42
Carthage	2,418
Spring City	31
Jackson farm	20
Juneveg line	82
Main line, Missouri	2
Pitcher extension	5
Kansas Natural Gas Co.	356
Quapaw main line	10
Total	10,731

NUMBER OF CONSUMERS ON WICHITA GAS CO.

Town.	Number of consumers.
Hutchinson	2,866
Wichita	10,840
Wellington	1,274
Winfield	1,725
Arkansas City	1,819
Newton	1,008
Burden	164
Oxford	167
Belle Plaine	189
Mount Hope	141
Derby	63
Bentley	39
Halstead	368
Sedgwick	307
Burrton	183
Haven	102
New Salem	27
Eldorado	772
Douglas	202
Rose Hill	42
Mulvane	263
Grenola	168
Atlanta	97
Udall	112
Cambridge	57
Vallen Center	87
Main line	207
Total	23,688

OKLAHOMA NATURAL GAS CO. CONSUMERS.

Town.	Number of consumers.
Oklahoma City	10,876
Guthrie	2,013
Shawnee	2,269
Edmond	494
Wellston	129
Davenport	85
Luther	90
Meeker	96
Arcadia	39
Kellyville	55
Midlothian	17
Depew	51
Chandler	415
Stroud	300
Total	16,939

CANEY RIVER GAS CO.

	Number of consumers.
Muskogee	5,347
Claremore	719
Wagoner	653
Ramona	147
Inola	88
Porter	105
Haskell	244
Coweta	295
Total	7,549

OTHERS IN OKLAHOMA.

	Number of consumers.
Tulsa—Galbraith Gas Co.	428
Tulsa—Osage & Oklahoma Gas Co.	5,503
Sapulpa—Sapulpa Light & Heat Co.	1,851
Henryetta—Smith & Swan	2,087
Mounds—Smith & Swan	315
Okmulgee—Okmulgee Gas Co.	1,300
Morris	300
Beggs	165
Ponca City—Ponca City Gas Co.	489
Cleveland—Minnetonka Gas Co.	287
Bristow—Bristow Gas Co.	398
Nowata—Citizens' Gas Co.	808
Dewey—Quapaw Gas Co.	210
Pawhuska	635
Collinsville—Henry Gas Co.	875
Owasso—Owasso Gas Co.	65
Broken Arrow and Chelsea	587
Bixby—Lowland Oil & Gas Co.	123
Delaware—Delaware Gas Co.	147
Cushing—Cushing Gas Co.	825
Others in Oklahoma	5,389
Total	23,005

Good Year for Gas Industry.

For the gas industry in the mid-continent field 1913 was a good year. With the exception of the Kansas Natural Gas Company the close of the year saw practically every gas company in the field in better condition than it was at the beginning of the year. This was not because of any especial number of wells, but on account of better facilities, more general conservation policies and a good average of wells. Even the Kansas Natural ended the year in better shape, its receivership muddle having finally been adjusted and less tenuency among patrons to complain.

The Kansas field was quite generally redrilled in 1913 and many small wells added much to the supply of the State. Some wells gauging as high as 28,000,000 were found near Coffeyville but they soon went down. Chautauqua county developed the first big gas southwest of Sedan. Montgomery county has proved one of the best gas districts in the entire field, wells 15 years old still producing. A new gas district is being developed at Augusta, Kan. Labette county came forward with a fine gas production in 1913.

In Oklahoma the principal gas production in 1913 was in the Cushing district, where some remarkably large wells were drilled, testing as high as 45,000,000 and 50,000,000, but they too went down quickly. Because of the fearful waste of gas in this district, where the flow was permitted to flow wild that drilling might be continued to the oil sand, the government conducted some successful experiments with a process to mud-up or seal with mud the gas formation, thus preventing the mingling of the gas with other contents of the hole. The experiments were very satisfactory and now big gas may be shut in and wells drilled deeper without profligate loss.

During the year a new line was started and nearly completed from Cushing to Bigheart, Osage, where the Wichita Natural Gas Company erected a large pumping station. This company is growing fast and expanding its system, since purchase by the Dougherty interests of New York.

Kansas reached its highest gas production in 1911, valued at $9,493,701. In 1912 there was a depreciation and in 1913 an increase. In 1912 Kansas produced 28,068,370,000 cubic feet of gas, valued at $4,264,706. In 1912 Kansas and Missouri consumed for domestic purposes, 24,821,582,000 cubic feet, valued at $6,018,363, an average of 24.25 cents per thousand. For manufacturing purposes these two States consumed 35,496,704,000 cubic feet, valued at $2,503,495, an average of 7.05 cents.

In 1912 Oklahoma produced 73,799,319,000 cubic feet of gas, valued at $7,406,528, or 10.04 cents per thousand. The total quantity of gas consumed in Oklahoma was 41,549,453,000 cubic feet, valued at $3,149,376, the remainder going to Kansas and Oklahoma. Oklahoma used 20,915,974,000 cubic feet for industrial purposes.

THE KANSAS NATURAL GAS CO.

The Kansas Natural Gas Company went into the hands of the United States court receivers October 9, 1912. Property examined by experts and report made to the court December 30, 1912, recommending increase in rates.

Order of court approving report of receivers and authorizing increase of rates. January 4, 1913, order suspended, awaiting action of Kansas Utilities Commission.

April 1, 1913, Utilities Commissioner handed down decision refusing to permit raise in rates.

February 15, 1913, receivers appointed by the State court of Montgomery county, Kansas, Messrs. J. M. Landon, former superintendent, and R. S. Litchfield, banker, both of Independence; instructed to appear in United States court and demand possession of property. Argument before Judge Marshall of Utah, set for hearing April 4, 1913. On June 5, 1913, decision of Judge Marshall decreeing that the property in the State of Kansas should be turned over to Kansas receivers and other property remain in hands of Federal court.

Decision appealed by bondholders. Set for argument and argued September 30 and October 1, 1913. Decision rendered November 4, confirming decision of lower court.

December 30, 1913, Judge Smith McPherson spread mandate on record ordering property in State of Kansas turned over January 1, 1914.

Property passed to possession of State receivers January 1, 1914.

January 1, 1914, cash on hand $110,000; bills receivable, $1,609,005. Total cash received during receivership (Federal), $2,728,119; disbursements, $2,617,589. More than 24 billion cubic feet of gas was produced and sold by Federal receivers. Federal receivers turned over to State receivers collectible accounts aggregating $1,440,000; outstanding accounts, $88,000.

Federal receivers were paid $5,000 each for services; lawyers, $12,250; appraisers, $6,497.

KANSAS AND OKLAHOMA OIL INSPECTIONS.

Duringv the fiscal year of 1913, 419,945 barrels of kerosene was inspected in Kansas as compared with 272,417 the previous year; 414,265 barrels of gasoline was inspected, compared with 298.53 in 1912. Fees collected amounted to $80,240.13, whereas in 1912 they aggregated $68,934.99 and in 1911 $61,677.09. The expenses of making the 1913 inspection were $18,248.19 and of the 1912 and 1911 inspections $29,803.09 and $27,067.29. In 1913 $48,336.42 was turned over to the State, compared with $38,189.95 in 1912 and $34,059.48 in 1911.

In Oklahoma 188,084 barrels of kerosene and 134,980 barrels of gasolene were inspected in 1913, against 162,900 barrels of kerosene and 113,110 barrels of gasoline in 1912, and 143,438 and 107,554 barrels, respectively, in 191. Fees collected in 1913 were $32,681.87; in 1912 $27,642.75 and $25,245.56. The cost of making the Oklahoma inspection was $7,528.52 in 1913; $6,311.35 in 1912 and $5,199.35 in 1911. The net proceeds to the State in 1913 amounted to $25,153.95; $21,329.40 in 1912 and $20,046.15 in 1911. It is not believed all oil in Oklahoma is reported for inspection.

PRAIRIE OIL AND GAS COMPANY.

One of the best years in history of the company. Its profits and increased valuation of assets aggregated approximately $20,000,000.

Now holds largest amount of oil in its history in storage.

Built 8-inch pipe line from Carrollton, Mo., to Alton, Ill., in 1913, distance of 192 miles, at cost of $3,700,000. Four pumping stations.

Built 120 miles line Caney, Kan., to Carrollton, Mo., to supply new Alton line with 20,000 barrels crude a day.

Built main line loups and increased capacity of Whiting line 5,000 barrels a day.

Built 8-inch line from Indian Station in Osage, to Cushing pool, 24 miles; also one 6-inch and one 8-inch 12-mile loups; cost $175,000.

Built new telegraph line Bartlesville to Independence and extended line to Alton, Ill.

Created new district with D. P. Leary as foreman and Ramona as headquarters. Embraces Ramona tank farm, Avant, Bigheart and Nalognay, one of the best districts in field.

There are 17,657 producing wells connected to Prairie lines.

Prairie had 1,838 wells connected to its Kansas lines at the beginning of 1913, and 2,593 at the close of the year.

The Prairie has more connected wells in Chautauqua county than in any other Kansas district.

The shallow sand district is the only one in the mid-continent with fewer wells on Prairie lines than a year ago. January 1, 1913, there were 4,296 and January 1, 1914, 3,543, a loss of 753, mostly to the Vinita refinery.

The Prairie owns 4,892 miles of pipe lines, of which 909 miles were laid in 1913.

The Prairie owns 16,000 barrels of production a day of its own.

There are 4,368 men in the employ of the company.

Nearly all of the men who rise to important positions with the company can telegraph.

More than 1,250,000 messages a year pass over the Prairie wires.

The Prairie owns 1,856½ miles of telegrah line; it can send a telegraph message, a telegram clicked into a telephone and a telephone message over the same wire at the same time without one interfering with the other.

There are 25 main line and 35 gather-

ing line pumping stations. The homes of employes are modern in every respect with electric lights, electric fans, etc.

In December Ed A. Lattimer resigned as division superintendent at Tulsa and became assistant to President D. C. Stewart of the Magnolia Petroleum Company. John R. Manion was promoted from division superintendent at Independence to Mr. Lattimer's position and M. J. Joftus of Texarkana, Ark., took Manion's place.

THE GULF PIPE LINE COMPANIES.

Gulf Pipe Line Company organized in 1907. Capitalization $3,500,000. Gulf Pipe Line Company of Oklahoma, organized in September, 1909. Capitalization, $1,000,000.

Officers of the Gulf Pipe Line Company of Oklahoma:—

W. L. Mellon, chairman of the board; George S. Davison, president; F. A. Leovy, first vice-president; Underwood Nazaro, second vice-president; M. M. Doan, third vice-president; R. B. Mellon, treasurer; H. P. Langworthy, assistant treasurer; G. Webber Barnes, assistant treasurer; J. E. Nelson, assistant treasurer; W. J. Guthrie, secretary; B. W. Grant, assistant secretary; F. C. Proctor, general counsel.

Gulf Refining Company located at Port Arthur, Texas; capacity of plant 30,000 barrels of crude a day.

Gulf Refining Company refinery at Fort Worth, Texas, with capacity of 5,000 barrels a day.

Miles of pipe line and size:—

	Size, Inches.	Miles.
Watkins, Okla., to Sour Lake, Tex..	8	417
Morris, Okla., to main line	3	8
Watkins to Bartlesville, Dewey and Delaware	6	73½
Cassidy Station to Osage lots	4	2
Main line at Morris to Bald Hill and Haskell	4	13
Morris to Tiger Flats district	4	8
Hamilton Switch to main line	4	4
Gathering lines in mid-continent field	6 3 2	231
Sour Lake, Tex., to Port Arthur, Tex.	6	36
Boston, Tex., to Sour Lake, Tex.	6	16
Sour Lake to Port Arthur	8	38
Caddo, La., to Lufkin, Tex.	6	98
Saltillo, Tex., to Fort Worth, Tex.	6	124
Sour Lake to Houston	6	60

Number of tanks, 199, varying in capacity from 35,000 to 55,000 barrels.

Oil in storage December 31, 1913, approximately 7,900,000 barrels.

The Gulf Pipe Line Company has 33 pumping stations in Oklahoma and Texas, three of them, Potter, in Marion county; Murvaul, in Panola county and Dayton, in Liberty county, all in Texas, having been built in 1913.

The Gulf Company owns 1,021½ miles of telegraph and telephone line, covering very largely the same districts as its pipe line system.

TEXAS AND LOUISIANA RUNS.

	Total bbls.	Daily avge.
January	480,000	15,000
February	529,000	18,000
March	658,000	21,000
April	645,000	21,000
May	670,000	21,000
June	520,000	17,000
July	580,000	18,000
August	548,000	17,000
September	506,000	16,000
October	588,000	18,000
November	611,000	20,000
December	508,000	18,000
Totals	6,919,000	

Stocks January 1, 1914, 7,900,000 barrels; January 1, 1913, 8,000,000 barrels.

Mid-continent runs will be found in production statement for mid-continent fields.

Foreign Capital in Mid-Continent.

It is estimated from $12,000,000 to $20,000,000 foreign capital is invested in the mid-continent field.

Foreigners seem to buy only the best properties.

The Royal Dutch combination is becoming very strong in this, as well as all American fields.

Foreign capital probably owns 12,000 barrels a day production in the mid-continent field.

The first big oil deals in this field were for Glenn pool production by foreign capital.

There has not been a time in eight years since one has not been looking for mid-continent production for European purchasers. There are standing offers now.

Companies in field.	Capitalization.
Union des Petroles, French	$8,000,000
Roxanna Petroleum Co., London	15,250,000
Oklahoma Oil Co., Ltd., Holland	750,000
Premier Petroleum Co., Holland	3,000,000
Oil Fields of Oklahoma, English	1,000,000
Alluwe Oil Syndicate, Ltd., English	400,000
The Tulsa Oil Co., London	£500,000
Pawnee-Cleveland Oil Fields, London	375,000
Glenn Pool Oil Co., Ltd., London	375,000
Glenn Pool Oil Co., Ltd., London	50,000
Kansas-Oklahoma Oil & Refining Co.	2,150,000
Oil Lands Development Co., London	250,000
Okla Oil Syndicate Ltd., Edinburg	
Total	$31,725,000

Market Fluctuations.

SHOWING EVERY CHANGE SINCE A REGULAR MARKET WAS ESTABLISHED IN MID-CONTINENT FIELDS.

1900.	
April	$1.09
April 27	1.08
May 7	1.05
May 10	1.03
May 12	1.01
May 21	.99
May 22	.97
May 31	.95
August 9	.93
September 24	.88
September 25	.86
September 25	.80
October 2	.83
October 4	.82
December 26	.84
December 27	.85
December 28	.87
December 29	.89
1901.	
January	.91
January 7	.92
January 14	.90
January 15	.88
February 2	.90
April 25	.88
April 30	.87
May 3	.85
May 10	.83
May 16	.82
July 19	.85
July 27	.91
September 28	.94
December 12	.91
December 13	.88
December 16	.85
1902.	
April 16	.88
June 26	.89
October 4	.92
October 16	.95
October 20	.97
November 6	.99
November 11	1.01
November 25	1.03
December 4	1.06
December 6	1.09
December 12	1.12
December 31	1.15
1903.	
April 22	1.16
May 16	1.14
July 16	1.10
July 23	1.18
September 28	1.20
September 30	1.22
October 8	1.24
October 13	1.26
October 17, South Neodesha	1.28
October 17, North Neodesha	1.08
October 17, heavy	.60
October 24, South Neodesha	1.30
October 24, North Neodesha	1.10
October 24, heavy	.60
October 28, South Neodesha	1.32
October 28, North Neodesha	1.12
October 28, heavy	.60
November 20, South Neodesha	1.35
November 20, North Neodesha	1.15
November 20, heavy	.60
December 2, South Neodesha	1.27
December 2, North Neodesha	1.17
December 2, heavy	.60
December 9, South Neodesha	1.38
December 9, North Neodesha	1.18
December 9, heavy	.60
December 29, South Neodesha	1.36
December 29, North Neodesha	1.16
December 29, heavy	.60
1904.	
February 12, South Neodesha	1.31
February 12, North Neodesha	1.11
February 12, heavy	.55
March 1, South Neodesha	1.28
March 1, North Neodesha	1.08
March 1, heavy	.55
March 4, South Neodesha	1.25
March 4, North Neodesha	1.05
March 4, heavy	.55
March 12, South Neodesha	1.22
March 12, North Neodesha	1.02
March 12, heavy	.55
March 29, South Neodesha	1.19
March 29, North Neodesha	.99
March 29, heavy	.55
April 8, South Neodesha	1.16
April 8, North Neodesha	.96
April 8, heavy	.55
April 29, South Neodesha	1.13
April 29, North Neodesha	.93
April 29, heavy	.55
June 7, South Neodesha	1.08
June 7, North Neodesha	.88
June 7, heavy	.55
June 17, South Neodesha	1.03
June 17, North Neodesha	.83
June 17, heavy	.55
July 9, South Neodesha	.95
July 9, North Neodesha	.75
July 9, heavy	.50
July 13, South Neodesha	.88
July 13, North Neodesha	.68
July 13, heavy	.47
September 1, South Neodesha	.80
September 1, North Neodesha	.70
September 1, heavy	.49
October 18, South Neodesha	.87
October 18, North Neodesha	.67
October 18, heavy	.46
November 7, gravity 32 degrees	.87
November 7, gravity 31½ degrees	.82
November 7, gravity 31 degrees	.77
November 7, gravity 30½ degrees	.72
November 7, gravity 30 degrees	.67
November 7, gravity 29½ degrees	.62
November 7, gravity 29 degrees	.57
November 7, gravity 28½ degrees	.52
November 7, gravity 28 degrees	.47
November 7, gravity below 28 degrees	.46
December 16, gravity 32 degrees	.82
December 16, gravity 31½ degrees	.77
December 16, gravity 31 degrees	.72
December 16, gravity 30½ degrees	.67
December 16, gravity 30 degrees	.62
December 16, gravity 29½ degrees	.57
December 16, gravity 29 degrees	.52
December 16, gravity 28½ degrees	.47
December 16, gravity 28 degrees	.42
December 16, heavy	.41
December 29, gravity 32 degrees	.80
December 29, gravity 31½ degrees	.75
December 29, gravity 32 degrees	.70
December 29, gravity 30½ degrees	.65
December 29, gravity 29½ degrees	.55
December 29, gravity 30 degrees	.60
December 29, gravity 31 degrees	.70
December 29, gravity 28½ degrees	.45
December 29, gravity 28 degrees	.40
December 29, heavy	.39
1905.	
January 5, gravity 32 degrees	.77
January 5, gravity 31½ degrees	.72
January 5, gravity 31 degrees	.67
January 5, gravity 30½ degrees	.62
January 5, gravity 30 degrees	.57
January 5, gravity 29½ degrees	.52
January 5, gravity 29 degrees	.47
January 5, gravity 28½ degrees	.42
January 5, gravity 28 degrees	.37
January 11, gravity 32 degrees	.72
January 11, gravity 31½ degrees	.67
January 11, gravity 31 degrees	.62
January 11, gravity 30½ degrees	.57
January 11, gravity 30 degrees	.52
January 11, gravity 29½ degrees	.47
January 11, gravity 29 degrees	.42
January 11, gravity 28½ degrees	.37
January 11, gravity 28 degrees	.38
January 11, heavy	.31
January 31, gravity 32 degrees	.70
January 31, gravity 31½ degrees	.65
January 31, gravity 31 degrees	.60
January 31, gravity 31 degrees	.00
June 17, gravity 31½ degrees	.45
January 31, gravity 29½ degrees	.45
January 31, gravity 29 degrees	.40
January 31, gravity 28½ degrees	.35
January 31, gravity 28 degrees	.30
January 31, heavy	.29
March 9, gravity 32 degrees	.70
March 9, gravity 30½ degrees	.56
March 9, gravity 31½ degrees	.65
March 9, gravity 31 degrees	.60
March 9, gravity 30 degrees	.50
March 9, gravity 30 degrees	.50
March 25, gravity 32 degrees	.68
March 25, gravity 31½ degrees	.63
March 25, gravity 31 degrees	.58
March 25, gravity 31½ degrees	.53
March 25, gravity 30 degrees	.48
April 12, gravity 32 degrees	.66
April 12, gravity 31½ degrees	.62
April 12, gravity 31 degrees	.56
April 12, gravity 30½ degrees	.51
April 12, gravity 30 degrees	.58
April 18, gravity 32 degrees	.61
April 18, gravity 31½ degrees	.56
April 18, gravity 30 degrees	.53
April 25, gravity 32 degrees	.57
April 25, gravity 31 degrees	.47
April 25, gravity 30½ degrees	.42
April 25, gravity 30 degrees	.53
May 27, gravity 32 degrees	.53
May 27, gravity 31½ degrees	.48
May 27, gravity 31 degrees	.43
May 27, gravity 30½ degrees	.38
May 27, gravity 30 degrees	.33
June 17, gravity 32 degrees	.50
June 17, gravity 31½ degrees	.45
June 17, gravity 31 degrees	.40
June 17, gravity 30½ degrees	.35
June 17, gravity 30 degrees	.30
June 17, fuel oil	.25
September 12, gravity 32 degrees	.50
September 12, gravity 31½ degrees	.46
March 9, gravity 30½ degrees	.32
March 9, gravity 30 degrees	.20
March 9, fuel	.28
1909.	
June 30, graviey 30 degrees and above	.38
June 30, gravity below 30 degrees, fuel oil	.28
July 21, gravity 30 degrees and above	.40
July 21, gravity below 30 degrees, fuel oil	.28
1910.	
March 17, gravity 30 degrees and above	.38
March 17, gravity below 30 degrees	.30
September 2, gravity 30 degrees and above	.40
September 20, mid-continent, all grades	.40
November 14, mid-continent, all grades	.42
1911.	
January 2, mid-continent, all grades	.44
May 2	.46
June 14	.48
September 15	.50
1912.	
January 2	.53
January 15	.55
January 25	.57
February 5	.60
April 10	.62
April 16	.64
May 7	.66
May 17	.68
July 16	.70
November 3	.73
November 27	.76
December 11	.78
December 16	.80
December 24	.83
1913.	
January 27	.86
January 29	.88
July 7	.93
July 21	.98
August 19	1.03

GULF COAST PETROLEUM REVIEW.

The year 1913 was a very prosperous one in the three prominent petroleum fields in the Southwest, known as the Gulf Coast fields, comprising the southern portion of Texas and South Louisiana; the Louisiana fields of Northern Louisiana, and the Panhandle fields of Northern Texas. All three fields made a remarkable showing the past twelve months and bid fair to make a much improved development for 1914, as the fields have an abundance of undeveloped territory where gushers are in plenty. Operators in the North and East are compelled to content themselves with small producing wells while the three fiel ds in this country are furnishing many wells in the gusher class.

Of a total of 2,044 wells drilled in the fields above mentioned there were 609 dry holes and 87 gas wells, leaving 1,348 petroleum producing wells, and from this number there were 401 gushers that averaged 627½ barrels each, which is phenomenal when figured out, as the production of the 401 gushers were 251,668 barrels. The average is really the largest for that number of wells in the history of the petroleum industry, and a far better showing than the big Oklahoma fields can boast of. These figures are from taking the wells drilled in the three fields from month to month that produce from 100 barrels up.

In the Louisiana fields the Caddo district is renowned for its large and monster gas wells. In February, the Gas Supply Company's well in section 9-20-15 produced 8,000,000 cubic feet and the Re Oil Company's well in section 31-22-15 produced 6,000,000 feet. In March the Southwestern Gas and Electric Company struck a 5,000,000 foot well in section 6-17-14. In April the Knight Oil Company's No. 5 Hoffman tract did 12,000,000 cubic feet; the Bassett Oil Company's No. 1 fee tract also did 12,000,000 cubic feet, but the banner gas well of the year for all fields was when the Rogers Oil and Gas Company, drilled in its test on its fee tract, which showed a volume of 70,000,000 cubic feet of gas. This is by far the largest gas well ever found in the Southwest country, not barring Oklahoma nor some of the big Caney gassers in Kansas. In May the Central Producers' Oil Company's well produced 25,000,000 cubic feet of gas, while the Fireside Company, on a town lot at Shreveport, drilled in a monster gas well which showed a volume of 30,000,000 cubic feet. In June, the Ames Oil and Gas Prospecting Company, found a 7,000,000 foot well on the Lewis tract, and the Rex Oil and Development Company one good for 6,000,000 feet. The Gulf Refining Company's second well on the Glaugua tract, did 5,000,000 feet. In July, the Gas Supply Company's well on Pine Island showed a volume of 15,000,000 cubic feet and it looks as though Louisiana would have an everlasting supply of natural fuel for all time to come. The people are aware of the fact that they have the gas in an abundance, but they are not familiar with the industry and as usual waste it. It does not take long for a gas field to exhaust itself, unless conservation in its use is made.

A few good gas wells are found in the Panhandle county of Northern Texas. In February a 15,000,000 cubic foot well was drilled in the Petrolea district by the Amerillo Oil Company, in its second well on the Joyce tract. In July in the same field, the Developers' Oil Company's No. 7 Markowitz tract showed a volume of 25,000,000, the largest found in the Panhandle county. In the same month the Texas Company's test at Matthews produced 8,000,000 feet.

Many gushers far above the thousand mark were finished during 1913 in all three fields, some running as high as 18,000 barrels a day. It will be remembered that on May 25 the Standard Oil Company's 18,000 barrel gusher on the Stiles tract, in the Caddo district, caught fire and many nights were spent in devising a way to extinguish the fire. The fire was extinguished several days later and when put into shape showed a production of 8,000 barrels, and was the fifth gusher to be found on the tract by the Standard Oil Company.

The wells drilled in the three fields for the year 1913 were as follows:—

Field.	Comp.	Prod.	Gas.	Dry.
Gulf Coast	738	92,341	9	316
Panhandle	768	51,345	10	193
Louisiana	538	148,605	68	100
Totals	2,044	292,291	87	609

Oil producing wells, 1,348.
Average per well per day, 211 barrels.

The above wells in the three fields combined were drilled, by months, as follows during 1913:—

Month.	Comp.	Prod.	Gas.	Dry.
January	153	25,082	7	44
February	142	19,408	10	51
March	144	40,432	7	34
April	203	25,034	9	65
May	164	38,159	6	43
June	189	26,932	8	67
July	199	28,019	8	57
August	192	22,077	7	60
September	153	13,942	3	41
October	154	18,429	7	42
November	177	9,774	3	53
December	174	25,023	12	52
Totals	2,044	292,291	87	609

The Gulf Coast Field.

The wells drilled in the Gulf Coast fields of Southeastern Texas and Southern Louisiana for the year of 1913 were distributed, by months, as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	42	15,712	2	9
February	56	4,447	1	24
March	69	26,861	..	13
April	92	16,300	3	47
May	52	8,335	..	22
June	86	5,625	3	42
July	78	2,420	..	32
August	77	4,684	..	34
September	51	2,087	..	22
October	49	3,447	..	22
November	58	1,066	..	17
December	57	7,357	..	32
Totals	738	92,341	9	316

Oil wells, 413.
Average per well per day, 223½ barrels.

The above wells of the Gulf Coast for the year were, by districts, as follows, which shows the number of wells drilled for the season in each field, also the many wildcat wells drilled:—

District.	Comp.	Prod.	Gas.	Dry.
Humble	143	8,129	1	54
Sour Lake	84	11,523	1	18
Batson	69	5,943	1	15
Spindletop	69	1,778	..	40
Saratoga	78	7,883	..	25
Vinton	76	41,385	..	32
Goose Creek	49	3,130	..	22
Jennings	29	4,815	..	9
Markham	21	380	..	13
Welsh	10	10	..	4
Liberty	10	140	..	7
Atascosa	11	25	..	7
Calcasius	8	1,980	..	3
Anse La Butte	6	2,362	..	1
Pine Prairie	6	50	..	4
Orange	5	2,700	..	3
Bexar	3	....	..	3
Brazoria	3	....	..	3
Sabine	4	....	..	4
Tyler	4	....	..	4
Limestone	4	....	3	1
Coleman	4	....	3	1
Harris	5	....	..	5
Eastland	3	....	..	3
Hardin	3	....	..	3
Matagorda	3	....	..	3
Gonzales	3	....	..	3
Jefferson	2	....	..	2
Shelby	2	....	..	2
Angeline	2	....	..	2
Cameron	2	....	..	2
Erath	2	....	..	2
Chambers	2	....	..	2
Terrebone	1	....	..	1
Madison	1	....	..	1
Franklin	1	....	..	1
Freestone	1	....	..	1
Houston	1	....	..	1
Titus	1	....	..	1
Rapid Parish	1	....	..	1
Brown	1	....	..	1
Jeff Davis	1	....	..	1
Polk	1	....	..	1
Montgomery	1	....	..	1
Commanche	1	....	..	1
Bee	1	....	..	1
Willacy	1	....	..	1
Totals	738	92,341	9	316

The Panhandle Field.

The drilled wells in the Panhandle field of Northern Texas during 1913 were drilled by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	64	2,721	..	26
February	55	3,366	1	24
March	49	2,956	..	11
April	72	2,119	2	17
May	73	6,978	1	17
June	66	5,593	1	16
July	64	5,725	2	15
August	75	4,498	1	19
September	50	5,605	..	9
October	57	5,042	1	9
November	80	5,136	..	22
December	54	2,598	1	8
Totals	768	51,345	10	193

Average per oil well per day, 91½ barrels.

The above wells were distributed among the various districts for the year as follows:—

District.	Comp.	Prod.	Gas.	Dry.
Electra	372	44,752	2	60
Petrolia	170	2,675	4	43
Cornicanett	80	2,055	..	23
Iowa Park	55	470	..	23
Eeds	28	960	..	13
Fowlkes	12	210	..	..
Shackleford	3	200	1	1
Archer	4	....	..	4
Jack	4	6	..	1
Corsicanett	4	12	..	1
Coleman	2	5	1	..
Thornberry	2	....	..	2

Matthews	2	....	..	2
Baylor	2	....	..	2
Young	1	....	..	1
Callahan	1	....	..	1
Willbarger	1	....	..	1
Cramack	1	....	..	1
Starr	1	....	..	1
Pratt	1	....	1	..
Throckmorton	1	....	1	..
McCulloch	1	....	..	1
Benson	1	....	..	1
Wise	1	....	..	1
Ayres	1	....	..	1
Wilson	1	....	..	1
Blackstock	1	....	..	1
Wilds	1	....	..	1
Elliott	1	....	..	1
Burnt	1	....	..	1
Beakley	1	....	..	1
Stephens	1	....	..	1
Evangeline	1	....	..	1
Totals	768	51,345	10	193

The table shows the runs from the wells and the deliveries of oil from the Panhandle field alone during each month for 1913:—

Month.	Runs, barrels.	Deliveries, barrels.
January	497,421	527,277
February	499,696	496,021
March	571,896	517,126
April	563,207	578,402
May	580,066	592,215
June	679,655	717,999
July	790,950	783,361
August	790,220	856,785
September	795,315	842,687
October	838,545	893,985
November	834,396	941,350
December	695,241	710,081
Daily average	8,136,608	8,452,189
Daily average	22,602	23,478

The stocks on hand at the close of each month during 1913 in the Panhandle field were as follows:—

Month.	Stocks, barrels.
January	1,134,141
February	1,017,241
March	906,307
April	912,290
May	885,704
June	713,674
July	1,030,724
August	1,084,376
September	1,222,923
October	1,130,015
November	1,124,685
December	1,297,085

The Louisiana Fields.

In the Louisiana fields the wells drilled for the year of 1913 were by months as follows:—

Month.	Comp.	Prod.	Gas.	Dry.
January	47	6,649	5	9
February	31	11,595	8	3
March	35	10,615	7	10
April	39	12,615	4	1
May	39	25,746	5	4
June	37	15,906	4	9
July	57	19,874	6	10
August	40	12,895	6	7
September	52	6,250	3	10
October	48	9,940	6	11
November	50	3,552	3	14
December	63	15,068	11	12
Totals	538	148,605	68	100

Oil wells, 370. Average per well per day, 402 barrels.

The above wells are located in the Caddo, Mooringsport, Vivion, Jeems Bayou, Oil City, Pine Island, De Soto Parish, Sabine Parish, Hooston, Monterey, Harts Ferry, Cross Lake, Red River Parish, Anse La Butte, Black Bayou, Edgerly and other Northern Louisiana points.

Details of the more important completions by fields and by months follow:—

Gulf Coast and Pan-handle Texas Good Wells.

Vinton Field.

JANUARY.—Gulf Refining Co.'s No. 10 Vincent tract, 14,000 barrels; Producers Oil Co.'s No. 3 on a part of the same tract, 125 barrels.

FEBRUARY.—Vinton Petroleum Co.'s No. 21 Gray tract, 150 barrels; Lucky Four Oil Co.'s No. 1 Harmony tract, 150 barrels.

MARCH.—Gulf Refining Co.'s No. 4 Star-Vincent tract, 13,000 barrels; No. 3 same farm, 700 barrels; No. 18 G. N. G. tract, 400 barrels; No. 11 Vincent tract, 350 barrels; No. 1 Vincent-Producers tract, 200 barrels, all owned by the same company. The Producers Oil Co.'s No. 7 Vincent tract, 1,000 barrels; Big Ten Oil Co.'s No. 4 Vincent tract, 250 barrels.

APRIL.—Producers Oil Co.'s No. 4 Vincent tract, 5,000 barrels; Vinton Petroleum Co.'s No. 13 Gray tract, 125 barrels, and the Gun Cove Oil Co.'s No. 3 Green tract, 100 barrels.

MAY.—Producers Oil Co.'s No. 3 Gulf-Vincent tract, 350 barrels; No. 6 Vincent tract, 200 barrels; Vinton Petroleum Co.'s No. 2 Harmony tract, 150 barrels.

JUNE.—Producers' Oil Co.'s No. 11 Vincent tract, 1,800 barrels; Gulf Refining Co.'s No. 1 Vincent tract, 100 barrels, and No. 6 same tract, 100 barrels.

JULY.—Vinton Petroleum Co.'s No. 22 Gray tract, 400 barrels; Wilson & Tucker's No. 5 Parks tract, 150 barrels; Producers Oil Co.'s No. 11, 12 and 13 Vincent tract, 150, 100 and 100 barrels, respectively.

AUGUST.—Victory Oil Co.'s No. 1 Lucky Four tract, 2,000 barrels; Producers Oil Co.'s No. 2 Vincent tract, 150 barrels; Gulf Refining Co.'s No. 7 Star-Vincent tract, and No. 16 Vincent tract, 200 barrels each.

SEPTEMBER.—Producers Oil Co.'s No. 8 Vincent tract, 100 barrels.

Spindletop Field.

JANUARY.—Guffey Petroleum Co.'s No. 168 Gladys tract, 200 barrels; No. 169 same tract, 150 barrels.

FEBRUARY.—Unity Oil Co.'s No. 2 Lucky Strike tract, 125 barrels.

MARCH.—Unity Oil Co.'s No. 3 Lucky Strike tract, 125 barrels; R. A. McReynolds' No. 1 in Block 15, 200 barrels.

APRIL.—Unity Oil Co.'s No. 4 Lucky Strike tract, 125 barrels.

MAY.—Unity Oil Co.'s No. 5 Lucky Strike tract, 125 barrels.

NOVEMBER.—Unity Oil Co.'s No. 32 National tract, 150 barrels.

Goose Creek Field.

JANUARY.—C. L. Smith & Co.'s No. 5 Sweet tract, 125 barrels.

MARCH.—Guffey Petroleum Co.'s No. 3 Briggs tract, 400 barrels; Barlow-Scott Oil Co.'s No. 7 Gillard tract, 500 barrels.

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MAY.—H. B. S. Oil Co.'s No. 8 Gillard tract, 100 barrels; C. L. Smith Co.'s No. 9 Sweet tract, 800 barrels.

JULY.—Guffey Petroleum Co.'s No. 2 Drillers tract, 200 barrels; Bartlett Oil Co.'s No. 2 Smith tract, 100 barrels.

OCTOBER.—Southern Petroleum Co.'s No. 2 Smith tract, 150 barrels.

NOVEMBER.—Southern Petroleum Co.'s No. 3 Smith tract, 100 barrels.

Saratoga Field.

FEBRUARY.—Houston Oil Co.'s No. 2 Hopkins tract, 2,000 barrels; Producers Co.'s No. 1 Vandervoot tract, 800 barrels.

MARCH.—Guffey Petroleum Co.'s No. 15 B. B. & Co. tract, 1,200 barrels; Houston Oil Co.'s No. 3 Hopkins tract, 1,000 barrels; Pagge Bros.' No. 31 McVittie tract, 300 barrels; Sante Fe Oil Co.'s Nos. 19 and 20 Fee tract, 100 and 150 barrels, respectively.

APRIL.—Houston Oil Co.'s No. 4 Hopkins tract, 1,000 barrels; Rio Bravo Oil Co.'s No. 331 Fee tract, 100 barrels.

JUNE.—Rio Bravo Oil Co.'s No. 335 Fee tract, 150 barrels; Cotton Oil Co.'s No. 3 Fee tract, 150 barrels.

Jennings Field.

JANUARY.—Gulf Refining Co.'s No. 22 Moose tract, 150 barrels; Producers Oil Co.'s No. 100 Latrielle tract, 250 barrels.

FEBRUARY.—Gulf Refining Co.'s No. 30 Arnaudet tract, 375 barrels.

MARCH.—Crowley Oil & Mineral Co.'s No. 62 Fee tract, 150 barrels; Gulf Refining Co.'s No. 1 Vallee tract, 450 barrels.

APRIL.—Calcasius Oil & Mining Co.'s No. 3 Teche tract, 2,000 barrels; Crowley Oil & Mining Co.'s No. 63 feet tract, 400 barrels; Gulf Refining Co.'s No. 22 Arnaudaut tract, 225 barrels.

JULY.—Crowley Oil & Mining Co.'s No. 65 Fee tract, 200 barrels.

AUGUST.—E. Laguerre Trus. No. 4 Latrielle tract, 100 barrels.

SEPTEMBER.—Gulf Refining Co.'s No. 33 Arnaudet tract, 150 barrels.

OCTOBER.—Gulf Refining Co.'s No. 34 Arnaudet tract, 158 barrels.

Humble Field.

MARCH.—Sun Co.'s No. 4 River tract, 100 barrels.

APRIL.—Producers Oil Co.'s No. 1 Foster tract, 100 barrels; No. 1 Kachler tract, 100 barrels.

MAY.—Producers Oil Co.'s No. 9 Carroll tract, 1,200 barrels.

JUNE.—Producers Oil Co.'s No. 2 Kachler tract, 125 barrels.

JULY.—Sun Co.'s No. 6 River tract, 150 barrels.

AUGUST.—Producers Oil Co.'s No. 10 Carroll tract, 100 barrels; No. 1 Kochler tract, 150 barrels.

SEPTEMBER.—Producers Oil Co.'s No. 10 Harman tract, 125 barrels.

OCTOBER.—Blaffer & Farish's No. 33 Mason tract, 500 barrels; Rucker & Co.'s test on Isaacs tract, 200 barrels.

NOVEMBER.—Ninety-nine Pumping Co.'s No. 3 Garden tract, 125 barrels.

DECEMBER.—Producers' Oil Co.'s No. 11 Carroll tract, 3,500 barrels.

Batson Field.

MARCH.—Sun Co.'s No. 46 Milhome tract, 100 barrels.

MAY.—Christian Oil Co.'s No. 35 Milhome tract, 3,000 barrels.

JUNE.—Sun Co.'s No. 48 Milhome tract, 1,500 barrels.

JULY.—C. E. Bass' No. 1 Milhome tract, 100 barrels.

AUGUST.—Kirkby Oil Co.'s No. 2 Hopkins tract, 200 barrels.

Anse Le Butte Field.

MARCH.—V'Villie Oil Co.'s No. 3 Begnaud tract, 125 barrels.

MAY.—V'Villie Oil Co.'s No. 2 Begnaud tract, 2,000 barrels.

DECEMBER.—A. M. Martin & Co.'s No. 1 Pourcio tract, 150 barrels.

Markham Field.

APRIL.—Markham Oil Co.'s No. 51 Smith tract, 140 barrels.

Sour Lake Field.

JUNE.—Texas Oil Co.'s No. 203 Fee tract, 800 barrels.

SEPTEMBER.—Producers Oil Co.'s No. 207 on its Fee tract, 1,000 barrels; No. 208, 200 barrels.

OCTOBER.—Producers Oil Co.'s Nos. 210, 211 and 212 Fee tract, 300, 100 and 450 barrels, respectively; Tarver Oil Co.'s No. 14 Hardin tract, 140 barrels.

NOVEMBER.—Producers' Oil Co.'s Nos. 213 and 214, 120 and 100 barrels; Soud Lake Oil Co.'s No. 1 Bashara tract, 180 barrels.

DECEMBER.—Producers Oil Co.'s Nos. 215 and 216 Fee tract, 125 and 100 barrels; Sour Lake Petroleum Co.'s No. 2 Jackson tract, 550 barrels.

Calcasius Parish Field.

JUNE.—Bright Oil Co.'s No. 1 Reed tract, 200 barrels.

AUGUST.—Gulf Refining Co.'s No. 1 Higgins tract, 600 barrels.

OCTOBER.—Gulf Refining Co.'s No. 1 Drew tract, 1,100 barrels.

Bland Field.

AUGUST.—Rio Bravo Oil Co.'s No. 1 Bland tract, 200 barrels.

Liberty Field.

AUGUST.—Staiti Bros.' No. 3 Jones tract, 100 barrels.

Orange Field

DECEMBER.—Gulf Refining Co.'s No. 3 Bright-Penn tract, 2,500 barrels.

Electra Field.

JANUARY.—Producers' Oil Co.'s Nos. 27 and 28 Waggoner tract, 400 and 500 barrels; No. 2 Sheldon tract, 400 barrels; Corsicana Petroleum Co.'s Nos. 41 and 43 Allen tract, 200 barrels each.

FEBRUARY.—Corsicana Petroleum Co.'s No. 13 Honaker tract, 1,500 barrels, and No. 17, 125 barrels; J. M. Guffey Petroleum Co.'s No. 5 Bywaters tract, 125 barrels, and No. 17 Miller tract, 200 barrels; Producers Oil Co.'s No. 42 Stringer tract, 250 barrels; Red River Oil Co.'s No. 11 Bywaters tract, 200 barrels.

MARCH.—Producers Oil Co.'s No. 14 Beckley tract, 800 barrels; No. 4 Bywaters No. 2 tract, 800 barrels; No. 45 Stringer tract, 100 barrels, and No. 3 Sheldon tract, 500 barrels.

APRIL.—Producers' Oil Co.'s No. 16 Bywaters No. 2 tract, 500 barrels; W. C. McBride's No. 4 Sheldon tract, 150 barrels; Corsicana Petroleum Co.'s No. 1 W. B. Honaker tract, 125 barrels; Guffey Petroleum Co.'s No. 18 Miller tract, 275 barrels.

MAY.—Corsicana Petroleum Co.'s No. 16 Red River tract, 360 barrels; Nos. 11, 15, 19 and 22, S. E. Honaker tract, 150, 150, 800 and 175 barrels, respectively, and Nos. 2 and 3 Waggoner tract, 125 and 100 barrels; Producers Oil Co.'s Nos. 36 and 38 Waggoner tract, 500 and 200 barrels; No. 18 Brickley tract, 420 barrels; No. 43 Stringer tract, 175 barrels; No. 17 Bywaters No. 2 tract, 500 barrels, and No. 2 Marriott tract, 600 barrels; Guffey Petroleum Co.'s No. 21 Miller tract, 100 barrels; Red River Oil Co.'s No. 15 Bywaters tract, 350 barrels; Forest Oil Co.'s No. 3 Marriott tract, 125 barrels; Webb & Hardenberg's No. 1, W. B. Honaker tract, 100 barrels.

JUNE.—Producers' Oil Co.'s Nos. 36, 37 and 42 Waggoner tract, 1,200, 150 and 150 barrels; No. 17 Bywaters tract, 500 barrels, and No. 2 Palmer-Sheldon tract, 800 barrels; also No. 14 Marriott tract, 250 barrels; Forest Oil Co.'s No. 11 Marriott tract, 200 barrels; Red River Oil Co.'s No. 16 Bywaters tract, 275 barrels; Guffey Petroleum Co.'s No. 8 Miller tract, 125 barrels; Corsicana Petroleum Co.'s Nos. 49 and 50 Allen tract, 150 barrels, and No. 16 Red River tract, 350 barrels.

JULY.—Producers Oil Co.'s Nos 31, 32, 35, 42 and 47 Waggoner tract, 1,400, 1,000, 150, 150 and 250 barrels, respectively; No. 20 Bickley tract, 120 barrels, and Nos. 14 and 15 Marriott tract, 300 and 350 barrels; Red River Oil Co.'s No. 17 Bywaters tract, 150 barrels; Corsicana Petroleum Co.'s Nos. 4 and 7 H. & T. C. tract, 100 and 125 barrels; No. 25 S. E. Honaker tract, 100 barrels; No. 51 Allen tract, 1,000 barrels, and No. 15 Brown-Cross tract, 300 barrels.

AUGUST.—Producers Oil Co.'s Nos. 45 and 48 Waggoner tract, 150 and 120 barrels; No. 21 Brickley tract, 150 barrels; No. 12 Allen tract, 150 barrels; No. 18 Bywaters No. 2 tract, 450 barrels, and Nos. 16 and 17 Marriott tract, 450 and 115 barrels; Forest Oil Co.'s Nos. 1 and 2 Marriott tract, 150 and 200 barrels; Guffey Petroleum Co.'s No. 20 Miller tract, 550 barrels; Corsicana Petroleum Co.'s No. 15 Red River tract, 140 barrels; Red River Oil Co.'s Nos. 19 and 21 Bywaters tract, 250 and 125 barrels.

SEPTEMBER.—Producers Oil Co.'s No. 1 Allen tract, 1,800 barrels; No. 16 Allen tract, 100 barrels; No. 6 Marriott tract, 400 barrels; No. 44 Waggoner tract, 150 barrels; Nos. 3 and 7 Honaker tract, 100 barrels each; Corsicana Petroleum Co.'s Nos. 26 and 27 Red River tract, 400 and 100 barrels; Forest Oil Co.'s No. 5 Douglass tract, 100 barrels, and Nos. 6, 7 and 12 Marriott tract, 400, 100 and 150 barrels; Guffey Petroleum Co.'s Nos. 13, 14 and 23 Miller tract, 300, 300 and 100 barrels; Red River Oil Co.'s No. 20 Bywaters tract, 200 barrels.

OCTOBER.—Producers Oil Co.'s Nos. 49, 51 and 55 Waggoner tract, 100, 720 and 100 barrels; No. 48 Stringer tract, 100 barrels, and Nos. 8 and 9 Marriott tract, 155 and 100 barrels; Corsicana Petroleum Co.'s No. 54 Allen tract, 100 barrels, and No. 12 H. & T. C. tract, 100 barrels; Guffey Petroleum Co.'s Nos. 12 and 24 Miller tract, 375 and 720 barrels; Forest Oil Co.'s No. 10 Marriott tract, 250 barrels; Red River Oil Co.'s Nos. 16, 24, 25, 26 and 28 Bywaters tract, 150, 300, 100, 100 and 240 barrels.

NOVEMBER.—Producers Oil Co.'s Nos. 57 and 59 Waggoner tract, 100 barrels each; No. 4 and 22 Marriott tract, 150 and 100 barrels; No. 19 Bywaters No. 2 tract, 100 barrels; No. 23 Brickley tract, 125 barrels, and No. 8 W. B. Honaker tract, 275 barrels; Corsicana Petroleum Co.'s No. 57 Allen tract, 350 barrels; No. 13 Putnam tract, 375 barrels; No. 12 H. & T. C. tract, 100 barrels, and No. 29 S. E. Honaker tract, 100 barrels; Red River Oil Co.'s Nos. 6, 25, 26, 28 and 34 Bywaters tract, 150, 100, 100, 240 and 450 barrels; Forest Oil Co.'s Nos. 2 and 10 Marriott tract, 150 and 250 barrels.

DECEMBER.—Corsicana Petroleum Co.'s Nos. 20 and 58 Allen tract, 125 and 300 barrels, and No. 14 Red River tract, 125 barrels; Producers' Oil Co.'s No. 24 Allen tract, 100 barrels; No. 9 W. B. Honaker tract, 100 barrels, and No. 10 Brickley tract, 300 barrels; Guffey Petroleum Co.'s No. 27 Miller tract, 100 barrels; Red River Oil Co.'s Nos. 29 and 31 Bywaters tract, 100 and 150 barrels.

Petrolia Field.

FEBRUARY.—Producers Oil Co.'s No. 11 Byers tract, 250 barrels; Amirillo Oil Co.'s second well on the Joyce tract, 15,000,000 cubic feet of natural gas.

MARCH.—Developers Oil Co.'s No. 4 Markowitz tract, 200 barrels.

MAY.—Producers Oil Co.'s No. 12 Byers Bros.' tract, 300 barrels; Developers Oil Co.'s No. 5 Markowitz tract, 300 barrels.

JULY.—Producers Oil Co.'s No. 16 Byers tract, 300 barrels; Developers Oil Co.'s No. 7 Markowitz tract, 25,000,000 cubic feet of gas.

OCTOBER.—Wichita Gas Co.'s No. 1 Matlock tract, 250 barrels.

NOVEMBER.—Developers Oil Co.'s No. 8 Markowitz tract, 500 barrels.

Eads Field.

JUNE.—Head & Lanford's test on the Borchelt tract, 125 barrels.

AUGUST.—Worth Oil Co.'s No. Mertine tract, 200 barrels.

OCTOBER.—Worth Oil Co.'s No. 2 Mertine tract, 150 barrels.

Burkburnett Field.

JULY.—Corsicana Petroleum Co.'s No. 1 Owens tract, 110 barrels.

AUGUST.—Corsicana Petroleum Co.'s No. 1 Viles tract, 140 barrels.

SEPTEMBER.—Guffey Petroleum Co.'s No. 1 George tract, 100 barrels.

Matthews Field.

JULY.—Texas Co. drilled an 8,000,000 gas well.

Shackleford Field.

NOVEMBER.—Texas Co.'s No. 1 Edwards tract, a purely wildcat well, 200 barrels.

Good Producers in Northern Louisiana.

Northern Louisiana from a gusher standpoint was the greatest field in the country during the year 1913, not in the number of gushers, but for large ones, alone. There were thirty gushers ranging from 1,000 barrels up, as high as 1,800 barrels a day, drilled during the year. The largest being the Standard Oil Company's Stiles thact well drilled in May that started at 18,000 barrels. During the year a total of 139 gushers, ranging from 100 barrels a day up, were drilled in the Northern Louisiana fields, with a combined production of 148,135 barrels.

JANUARY.

J. C. McCue, Louisiana tract, 2,000 barrels. Atlas Oil Company, Levee Board tract, 1,100 barrels. Rogers Oil & Gas Company, Rogers tract, 300 barrels. Columbia Oil & Gas Company's Anderson tract, 100 barrels. Gulf Refining Company's Lake Ferry tract, 950 barrels. Standard Oil Company, Stiles tract, 115 barrels. Henyman heirs tract, 700 barrels and 100 barrels.

FEBRUARY.

Gulf Refining Company, Curtiss tract, 5,000 barrels. Alamo Oil Company, Alamo tract, 5,000 barrels. Sun Company, Williams tract, 110 barrels. Atlas Oil Company, Levee Board tract, 300 barrels. Standard Oil Company, Helpman tract, 120 barrels. Stiles tract, 285 barrels.

MARCH.

Standard Oil Company, Stiles tract, 7,500, 1,500, 825 and 450 barrels. Same company, Helpman tract, 180 barrels. W. C. Wolfe, Markley tract, 175 barrels.

APRIL.

Gold Refining Company, Barnhart tract, 3,500 barrels; Curtiss tract, 1,000 barrels. Standard Oil Company, Hart tract, 2,000 barrels; Helpman tract, 200 barrels. Producers' Oil Company, Brown tract, 2,000 barrels; Ellsber tract, 150 barrels; Brown tract, 500 barrels. Standard Oil Company, Helpman tract, 500 barrels. Southwestern Gas & Electric Company, fee tract, 1,800 barrels. C. L. Smith, Margley tract, 145 barrels, Knickerbocker Oil Company, Rivers tract, 175 barrels.

MAY.

Atlas Oil Company, Noel tract, 3,000 barrels; Levee Board tract, 1,500, 126 and 100 barrels; Helpman tract, 100 barrels. Producers Oil Company, Russell tract, 100 barrels; Harrell tract, 1,500 barrels; Pitts tract, 560, 260 and 1,000 barrels. Gulf Refining Company, Levee Board tract, 170 and 200 barrels; Barnhart tract, 600 barrels. Pheonix Oil Company, Stokley tract, 1,500 barrels. Azel-Ford Oil Company, Fain tract, 800 barrels. C. D. Rives, Brown tract, 500 barrels, Commercial Oil & Gas Company, Baird tract, 165 barrels. Standard Oil Company, Stiles tract, 18,000 barrels, the big gusher of the year. Gulf Refining Company, Jenkins tract, 1,000 barrels.

JUNE.

Producers Oil Company, Pitts tract, 10,000 barrels; Brown tract, 100 barrels; Levee Board, 136 barrels. Gulf Refining Company, Ferry Lake tract, 200, 350 and 2,800 barrels. Azel-Ford Oil Company, Hargrave tract, 600 barrels. Clifton Oil Company, Peak tract, 200 barrels. Commerce Oil Company, McCormick tract, 250 barrels. Schaw & Fallis Company, Hooston tract, 125 barrels. Standard Oil Company, Stiles tract, 100 barrels; Helpman tract, 100 barrels; Joyce tract, 450 barrels.

JULY.

Higgins Oil & Fuel Company, Smith-Lucas tract, 7,000 barrels. Sun Company, Harrell tract, 720 barrels. Gray Oil Company, Pitts tract, 230 barrels. Gulf Refining Company, Ferry Lake tract, 2,500 barrels; Heilperin tract, 2,000 barrels; Ferry Lake tract, 225, and 125 barrels; Barnhart tract, 900 and 700 barrels; fee tract, 400 barrels. Standard Oil Company, Stiles tract, 200 and 350 barrels. Producers Oil Company, Brown tract, 3,000 barrels; Pitts tract, 650 barrels.

AUGUST.

Star Oil & Gas Company, Loucks tract, 4,770 barrels. Richardson Oil Company, Leonard tract, 3,600 barrels. Standard Oil Company, Hart tract, 2,000 barrels. D. C. Richardson, Louisiana tract, 500 barrels. Birmingham Oil & Gas Company, Pitts tract, 1,800 barrels. Atlas Oil Company, Levee Board, did 125 barrels. Producers Oil Company, Harrell tract, 290 barrels. Gulf Refining Company, Barnhart tract, 200 and 100 barrels; fee tract, 150 barrels.

SEPTEMBER.

Standard Oil Company, Stiles tract, 1,800 barrels; Scales tract, 100 barrels. Gray Oil Company, Pitts tract, 110 and 120 barrels. Commerce Oil Company, Van Lear tract, 165 barrels. Clifton Oil Company, Bank tract, 156 barrels. Purified Petroleum Company, Land tract, 250 barrels. Birminghame-Caddo Oil & Gas Company, Pitts tract, 120 barrels. Gulf Refining Company, Hostetter tract, 165 barrels; Barnhart tract, 200 barrels. Producers Oil Company, Croom tract, 150 barrels. Atlas Oil Company, Levee Board, 890 barrels. J. C. McCue, Louisiana tract, 640 barrels. Filer Oil Company, Filer tract, 150 barrels. Velvet Oil Company, Jolly tract, 150 barrels. W. H. Rowe, McCann tract, 125 barrels. Gulf Refining Company, Jenkins tract, 100 barrels.

OCTOBER.

Gulf Refining Company, Stiles tract, 8,000 barrels; Ferry Lake tract, 200 barrels; fee tract, 100 barrels. Standard Oil Company, Stiles tract, 180 and 160 barrels. Pasadena Petroleum Company, Allen tract, did 100 barrels. Gray Oil Company, Brown tract, 125 barrels. Commerce Oil Company, Van Lear tract, 185 barrels.

NOVEMBER.

Standard Oil Company, Scales farm, 550 barrels; Stiles tract, 500 barrels. Producers Oil Company, Nabors tract, 500 barrels; Suspence tract, 100 barrels. Star Oil Company, Loucks tract, 317 barrels. Gulf Refining Company, Ferry Lake tract, 150 barrels. Filer Oil Company, Files tract, 100 barrels. Houston-Caddo Oil Company, Holt tract, 200 barrels, the Knickerbocker Oil Company, 155 barrels.

DECEMBER.

Pasadena Petroleum Company, Wemple tract, 4,000 and 2,500 barrels. Standard Oil Company, Stiles tract, 2,500, 2,000 and 400 barrels; Scales tract, 500 barrels. Star Oil Company, Loucks tract, 320 barrels. Gulf Refining Company, fee tract, 200 and 104 barrels; Jenkins tract, 200 barrels. Same company, Files tract, 225 barrels. Henrietta Oil Company, Ballard tract, 125 barrels. Producers Oil Company, Nabors tract, 650 barrels; McEnery tract, 200 barrels. Alamo Oil Company, Alamo tract, 200 barrels.

CALIFORNIA PETROLEUM REVIEW.

California retained its position in 1913 as the greatest producer of petroleum of any State in the union by millions of barrels. The total output of this State was nearly double that of its nearest rival—Oklahoma, and almost half as large as the entire production of the United States, and the California output for 1913 exceeded its own production of the year previous by 9,000,000 barrels, and this was accomplished in the face of the most adverse conditions experienced here since the industry became a factor of any importance.

The year opened with a big overpro-

duction, which had been constant for three years. Stocks had increased to nearly 47,000,000 barrels. Prices had reached rock bottom, and there was little incentive for the operator to drill, and a period of retrenchment was entered upon, which resulted toward the end of the year in practically no drilling being done by any concern outside the largest operating companies. There were fewer mills completed during the year, therefore, than in any similar period for four years past. The Standard still refused, until the closing months of the year, to buy low gravity oil and no less than 1,500 producing wells, representing an output of 20,000 barrels a day, were shut down the last three months.

In spite of these conditions the output of the State for 1913 exceeded 99,000,000 barrels, an increase over the previous year, as stated above, of 9,500,000 barrels. A conservative valuation of the year's output of crude is 50 cents per barrel, or a total of $49,500,000. This is an increase of $400,000 over the value of the previous year's output. This increase is due not only to the growth in production, but also to an increase in the average price. The immense supply of low grade oil, and the loss of a market by many low grade producers, resulted in very little drilling being done for the heavy product. The attention of operators was almost exclusively given to the light oil territory, with the result that the output of the higher grades of oil was materially increased. It is estimated that at the close of the year 65 per cent. of the State's output was what is called here "refining oil," that is, suitable for refining purposes as compared with the heavy fuel grades.

This fact was one of the factors in developing the refining business in the State, which increased wonderfully during the year. All the large refining concerns increased the capacity of their plants and new ones were established. Among the latter may be mentioned the million and a half dollar plant of the Associated Oil Company, at San Francisco bay, which began operations about the middle of the year. It is estimated that at the present time fully 65 per cent. of the State's entire output is subjected to some refining process before it is marketed.

It is proper here to note that considerable attention is now being given by the larger refiners to the low grades of oil with a view to extracting what by products they contain before the residuum is sold for fuel purposes, and it it is not unreasonable to predict that before many months very little pure crude will be used as a fuel, especially in view of the fact that the "residuum fuel" is as efficient as the pure product.

Nothwithstanding the big increase in refining, California oil still retains its greatest value as a fuel, especially on this coast when coal so far as industrial development is concerned is practically prohibitive. The industrial upbuilding of the Pacific Coast must depend and is depending on the oil industry of California.

And the California oil operator, by what he has accomplished during the last twelve months, has shown the world that he can furnish fuel for years to come, to all who may apply. The year's work has shown not only the remarkable productivity of the oil sands, but also the "staying qualities" of the wells. The large year's output was in part due to a number of unusual gushers, which refused to "sand up" or subside, but considering the large number of wells shut in, the manner in which the fields "held up" in their production is no less than remarkable. And experts tell us that the California oil industry is young, so far as development is concerned.

Certain it is that there are hundreds of thousands of acres of what are termed "oil lands" in this State that have not yet been drilled. The wildcatter was especially inactive during the year just closed for obvious reasons, but there is no doubt, if the necessity arises, new fields may be opened up that will continue the State's output indefinitely.

As a matter of fact, the territory already proved to be oil-bearing has only been "scratched." On the 6,000 and more acres already proved there have not been drilled to exceed 10,000 wells, and there are at present not more than 7,500 wells that are producers. The wells already drilled have produced about 700,000,000 barrels of oil. It is bewildering to contemplate what the future holds in store.

As stated above, prices at the opening of the year were at rock bottom. The producer of low grade oil—below 18 degrees in gravity—was receiving 30 cents per barrel, but the market was very slow, owing to the Standard's refusal to buy this oil at any price. The Union-Agency members were receiving 35 cents per barrel for this grade of oil, owing to certain advantageous contracts made by the Union as selling agent. This caused a considerable "flocking" of outside producers to the agency and a number of them were admitted to membership, thereby increasing the Agency output, but not to such an extent as to be embarrassing. The Agency price gradually advanced until at the close of the year the members were receiving 36½ cents per barrel for their oil and selling their entire output. For some reason not yet clear, the Standard Oil Company in October began buying low-grade oil again and made several contracts with producing companies at 35 cents a barrel—5 cents in advance of the price it was paying when a year before it refused heavy oil. It is stated that now the Standard is in the market for all the low-grade oil it can secure, but the amount is now limited, owing to the fact that the Standard had, by its action, driven the majority of the independent producers into the Agency. At the close of the year there were distinct evidences of an advance in the price of oil. The reason is not easily discernable, but was due no doubt to the large and constant advance during the year in consumption.

The most encouraging feature of the business during the year was found in the growth in consumption. This has been constant and the percentage of increase was considerably in excess of the increase in output. The total year's consumption amounted to 97,000,000 barrels, a gain over 1913 of 14,000,000 barrels. Part of this increase was due to expansion in the refining business, but the marketing companies also increased their business in fuel oil and it is known that had it not been for a shortage in tank ships the foreign shipments would have been augmented by several hundred thousands of barrels.

At the present time it is figured there is an actual demand for all the oil produced in this State and deliveries would show this, if not for the handicap in transportation facilities noted. Every one of the marketing concerns now has under construction two or more tank steamers which, when delivered, will relieve the situation.

Taking the situation by the large, the outlook at the close of the year was brighter than for many months past and oil men look forward to 1914 in confidence that it will bring better times.

Production and Consumption.

The actual output of crude petroleum from the California fields for the year 1913 was 99,147,323 barrels, according to the figures of prominent oil statisticians and others which are considered entirely reliable. This compares with 90,078,440 barrels produced in 1912 and shows a gain of 9,068,883 barrels. The monthly average during the year was 8,262,277 barrels, which is more oil than was produced throughout the twelve months of 1901. There is no doubt that the total output for the year would have been in excess of 100,000,000 barrels under more favorable conditions. Four years ago it was predicted by well-posted oil men here (not, however, without some trepidation) that California would eventually produce 75,000,000 barrels of oil a year. These figures now look rather small, and no one is now predicting what the limit may be.

The gain in output was fairly gradual throughout the year, increasing from 7,582,346 barrels in January to 8,442,732 barrels in December. In August the output was over 8,750,000 barrels, and in September it nearly reached 9,000,000 barrels, but these were exceptional months, owing to the output from two gushers which alone produced approximately 500,000 barrels during the month.

As stated above, consumption grew more rapidly during the year than production, and reached a grand total of 97,211,016 barrels. This is a gain over 1912 of 15,469,734 barrels. The increase here also was gradual, although deliveries from month to month show big fluctuations which have been explained before. It will be seen that the consumption for 1913 was about 7,000,000 barrels in excess of the total output for 1912.

The market expansion was in a large measure due to the fact that consumers became satisfied that there was no further question as to the supply and the increase in fuel consumption was taken up by transportation concerns, both land and water, and the indications are that in the marine service the increase will be more rapid in the immediate future than it has in the past. It is to this market, in fact, that the California operator is looking to absorb any further increase in output, although industrial development on the coast is also expected to receive an impetus from the opening of the Panama Canal, and it is on the basis of liquid fuel that any industrial development can come.

A comparison of the production and consumption by months for the years 1912 and 1913 is given below:

PRODUCTION BY MONTHS.

	1912. Barrels.	1913. Barrels.
January	7,627,254	7,582,346
February	6,893,432	7,292,751
March	7,289,498	8,184,809
April	7,208,672	7,943,851
May	7,333,180	8,608,178
June	7,345,702	8,103,941
July	7,560,748	8,573,906
August	7,698,424	8,755,6 4
September	7,581,285	8,932,302
October	8,158,814	8,515,599
November	7,676,176	8,550,294
December	7,705,233	8,597,802
Totals	90,078,440	99,147,323
Increase for year	.....	9,068,883

CONSUMPTION BY MONTHS.

	1912. Barrels.	1913. Barrels.
January	7,065,372	7,526,512
February	6,301,985	6,667,029
March	6,551,705	8,378,230
April	6,406,918	8,104,770
May	6,703,087	8,566,079
June	6,918,759	8,011,831
July	6,982,946	8,325,402
August	7,314,213	8,188,712
September	6,672,301	8,365,420
October	7,772,016	8,496,102
November	7,236,930	7,938,197
December	7,751,297	8,442,732
Totals	83,677,589	97,211,016
Increase for year	.....	15,469,734

It should be noted that in all calculations of production and consumption there must be taken into consideration the fixed consumption—that is, the oil used as fuel in the fields—which is included in the totals figures. This fixed consumption is estimated to be about 425,000 barrels a month, or a total of 5,100,000 barrels for the year. In order to arrive at the net output and net deliveries—the actual amount of oil that goes on the market—this amount should be deducted from the totals. The leading statisticians always figure the gross output.

SUMMARY FOR 1913.

	Barrels.
Total production	99,147,323
Monthly average production	8,262,277
Total consumption	97,211,016
Monthly average consumption	8,100,918
Total overproduction	1,936,307
Monthly average overproduction	161,359

Production by Fields.

The figures below give the output of the various fields, as compared with that of the previous year, and show gains in every important district of the State except the Kern River, Santa Maria and Salt Lake fields. The decline in the Kern River and Salt Lake is natural. The limits of these fields are well defined and the territory is pretty well drilled up. The decline at Santa Maria is due in a large measure to slow development during the year. Very little drilling was done. The territory is all held in large tracts for the most part and there was no incentive on the part of the operators to drill, although there is a very large area of proved oil land that has not yet been touched.

The San Joaquin Valley fields, as usual, furnished the great bulk of the State's production, although the southern group, especially the Fullerton, Whittier and La Habra Valley fields came to the front rapidly during the last few months of the year. The valley fields produced a total of 77,744,282 barrels. The Sunset-Midway district, now recognized as the greatest oil field in the world, led all the fields, with a total of 30,285,031 barrels, an average of over 3,250,000 barrels a month. This field produced 40 per cent. of the State's entire output for the year. It is in this field where most of the sensational gushers have been drilled in, and they have been struck in all sections of the field. During the year an unusual number of phenomenal wells were brought in, which are referred to elsewhere, but these were not entirely responsible for the big output. The average wells are good wells and hold up to a remarkable degree. There have been probably 1,500 wells drilled in this field to date. There are at present 1,252 producing and their average daily output is 104 barrels each. There was a big decrease in the number of wells completed in this field during the year, the total being 227, as compared with 315 the previous year. There are in this field, as in several other of the valley fields, a considerable number of wells shut in which would increase the output if opened up. As it is, the field produced more than twice as much oil as its nearest rival—the Coalinga field.

Coalinga, the second largest district in the State, shows a slight decline in output from the previous year, but this is due to artificial conditions, and does not indicate that the field is on the down grade. As in other fields, during the past few months, some of the best producing wells in the district have been shut in, notably those on the California Oilfields, Ltd., property and the output was in this way curtailed about 15,000 barrels a day, or nearly half a million barrels a month. Development was also very slow during the year in this field. There were only 56 wells completed during the entire period, as compared with 107 in 1912. About 1,000 wells have been drilled in this field and there are now producing 853 wells, with an average output of 75 barrels a day, admittedly high, considering the age of many of the wells. The total output for the year was 18,659,229 barrels, as compared with 19,570,000 barrels in 1912. The general opinion is that the year 1914 will see a substantial increase in output at Coalinga, owing to the entry there of the Shell interests, which at present are curtailing their output.

The Kern River field retains its position as third in point of output of the State's fields with a total of 10,211,201 barrels, but will probably be passed the coming year by Fullerton. Kern River is the oldest of the large fields of the State and it was here that the big boom of 1900 commenced. During the last four months the field has declined rapidly in output, but part of this decline was due to shutting in a large number of wells. In point of area Kern River is the smallest field in the State and yet more wells have been drilled here than in any other—a total of about 2,500. A year ago there were 1,663 wells producing in the field, with an output of 975,000 barrels a month. At present there are 1,202 wells producing, with an output of 650,000 barrels a month. This shows a daily average output per well of 17 barrels, which would be very good in Pennsylvania, but is not considered so here. Drilling was practically nil during the year in this field and but 29 wells were completed, which was 61 less than in 1912. The field is still a good one and will, no doubt, continue to produce for years, as the sands are thick and the wells are stayers.

The McKittrick field, which might more properly be called the Belridge field (as the latter is now the big end of it) showed its usual small increase, with a total of 6,686,680 barrels for the year. This production comes largely from the Belridge pool. The old McKittrick field has been going down for several years, but the recent entry of the Standard into the McKittrick district may stimulate operations to some extent. There was practically no drilling done here during the year, the wells completed credited to this field—50 in all—being in the Belridge. This little pool is virtually a one company field—the Belridge Oil Company holding 30,000 acres and doing most of the drilling.

The Lost Hills field again shows up with the second largest percentage of gain in output of any field in the State, being exceeded only by Whittier. The total year's output was over 2,902,141, as compared with 1,336,000 barrels in 1912, a gain of about 53 per cent. The field was opened up but two years ago. The territory was shallow and the wells came in big and development was therefore rapid. During the past year efforts were made to locate a deeper sand and with success. A few wells are now producing from this sand. Owing to the easy drilling there were 52 wells completed during the year and there are now 110 wells producing. Their average is about 90 barrels a day per well.

In the coast district, Santa Maria and Lompoc are the only ones of importance. The Watsonville and Simmerland pools are small and no longer factors in the business at large. Their combined output for the year being only about 85,000 barrels.

The Santa Maria field is still a large producer, but has dropped, in point of output, from fourth field in the State, a position it once occupied, to sixth. Although the field declined during the year, the percentage of loss was not so great as in 1912. The total output in 1913 was 5,362,261 barrels, as compared with 5,797,000 barrels in 1912. There was very little drilling done and but 20 wells were brought in during the year. The Cat Canyon section of the field is nearly dead. The light demand for the extremely low grade stuff produced in the Cat Canyon wells has resulted in most of the concerns operating there shutting down and at the close of the year there was no drilling being done at all. There are in the entire Santa Maria district at present 190 wells producing. Their daily average per well is 83 barrels.

The Lompoc field showed very little change in point of output from the previous year. The large concerns, holding most of the territory not being disposed to do much drilling. At no time during the year were there more than two strings of tools running and but four wells were completed, and there are only 30 wells producing in the field. The average daily output per well, however, is higher than any other field in the State, the average being 107 barrels.

Summerland has 121 wells producing about one and one-half barrels a day per well. The Watsonville pool has four wells producing 13 barrels per day average for each well. No drilling was done in either field during the year.

The southern fields show a big gain in output for the year over 1912. This was due to the unusual activity in the Fullerton and La Habra valley districts, and several of the Ventura county pools. In the former the production was substantially increased and Ventura county also shows a material gain.

The greatest field in the southern group is the Fullerton district, which includes the Olinda, the Brea Canyon and the La Habra valley pools. The field now ranks a good fourth among the fields of the State in point of output and present developments indicate that it will pass Kern River field in the near future. The total output for the year was 7,926,229 barrels, a gain of 1,000,000 barrels over 1912. The territory here requires deep drilling and development is necessarily slow, but when the Standard entered the valley and introduced the rotary method of drilling it proved a big success and was generally adopted. The result was that 33 wells were completed during the year. All the companies now operating in the La Habra valley are using rotary outfits. There are about 50 strings of tools in operation and the field is the liveliest of any in the State. There are 330 wells producing in all, their daily average a day per well being about 60 barrels.

The Salt Lake-Los Angeles district produced during the year less than 3,000,000 barrels, which is a decline, but not so great as in the year 1912. Of this amount the old Los Angeles city field produced about 300,000 barrels. This field holds up in a remarkable way. There are still about 400 wells being pumped within the city limits.

They do not average over 2½ barrels a day per well, but they are inexpensive to operate and the owners keep them going. The oil is all peddled by the producers to local consumers. The Salt Lake field proner has seen its best day and will probably gradually decline. There is very little drilling done, and but 14 wells were completed during the year. The only work going on is in the northeastern end of the field and the wells brought in are small and produce a very low grade oil. In the field there are 300 wells now producing, and the average per well is about 23 barrels a day.

Whittier is one of the fields that came forward with a jump owing to sensational developments in the Coyote Hills where the Standard Oil Company brought in a number of real gushers on the Emery lease. The original Whittier field amounts to little either in area or output and the Coyote Hills pool is the real producer. The total output for the year of the Whittier-Coyote district was 2,781,000 barrels, as compared with 1,088,000 barrels in 1912, showing a gain of nearly 150 per cent. by far the largest of any in the State. That the district will continue to gain is certain from the amount of new work now going on. The Standard is building seven new rigs on the Murphy Oil Company holdings, recently leased, and will continue active development work indefinitely. Considering the comparatively few wells that were completed during the year—six in number—the increase in output is remarkable. At the close of the year there were over 174 wells producing with an output of about 400,000 barrels a month. The production of the Whittier-Coyote district is high grade oil, and ranks with the Ventura county product in the percentage of by products obtainable.

The Ventura county fields, which are grouped under one head, showed a big gain in output for the year, being credited with 910,063 barrels, an increase of 240,000 barrels over 1912. These districts received considerable attention during the year owing to the high gravity of the oil found. One new pool, the Santa Susanna in the simi valley, and promises to one of the most important in the county. The territory is shallow and resembles in many respects the famous Montebello pool near Fillmore. The Montebello pool is now producing 1,500 barrels a day, the largest output of any pool in the county. The Santa Susanna pool has furnished some big wells also, one brought in by the Santa Susanna Syndicate starting at 2,200 barrels a day. There were 37 wells completed in the county during the year and there are 333 wells now producing. Some of the oldest wells in the State are located in Ventura county, as this was the pioneer oil county of the State and some drilling was done here nearly 40 years ago. Some of the wells now producing are over 30 years old. Oil men agree that somewhere in Ventura county an immense field will be opened up. The formation is very much broken and the country is unusually rough, and with all the drilling so far done, the main body of oil sand does not appear to have been tapped.

Newhall and Puente, the remaining fields of the southern group, are both slowly declining, and do not cut much of a figure in the general results. But one well was drilled in the Newhall field and none in Puente. Newhall produced in 1913 113,602 barrels and Puente's output was 28,130 barrels. These two fields are the oldest recognized fields in the State. The Pacific Coast Oil Company at Newhall, now owned by the Standard, was the first operating concern here. The Puente Oil Company was the second and is still owned by the men who drilled the first well, nearly 40 years ago.

The following shows the output of the different fields for the year as compared with that for the year 1912. In the summary it will be seen that the valley fields produced seven-eighths of the total State's output.

Production by Fields

	1912. Barrels.	1913. Barrels.
Valley—		
Sunset-Midway	31,008,880	39,285,031
Coalinga	19,570,001	18,659,229
Kern River	12,422,865	10,211,201
McKittrick	6,375,405	6,686,680
Lost Hills	1,356,038	2,902,141
Coast—		
Santa Maria	5,797,656	5,362,261
Lompoc	1,001,373	1,089,224
Summerland	65,680	61,041
Watsonville	43,250	26,660
Arroyo Grande	1,950	.....
South—		
Fullerton	6,847,240	7,926,229
Salt Lake-Los Angeles	3,064,597	2,940,572
Whittier-Coyote	1,088,242	2,781,000
Ventura county	669,325	910,063
Newhall	110,167	113,602
Puente	29,520	28,130
Totals	90,023,207	99,147,323

SUMMARY.

	1912. Barrels.	1913. Barrels.
Valley fields	71,313,187	77,744,282
Coast fields	6,969,919	6,539,186
Southern fields	11,800,101	14,699,596

Field Operations

The unfavorable conditions at the opening of the year and continuing throughout furnished little inducement to drill and the independent operator gradually curtailed on his development work, until at the close of the year at least 75 per cent. of the drilling was being done by a half dozen of the large concerns. On December 31, 1913, there were a total of only 267 wells drilling in the entire State. This was 138 less than one year previous and compares with 700 wells drilling three years ago. In view of this retrenchment in drilling, the increase in production is remarkable and could not be duplicated in any other oil fields in the world. As the number of drilling wells decreased the territory drilled in was restricted and at the close of the year drilling was confined to well known territory where big wells were assured.

Of the total wells now drilling 169 are in the valley fields and of these 114 are in the Sunset-Midway district where the Standard, General Petroleum and K. T. and O. are carrying on extensive development work. In Coalinga there are but 31 strings of tools at work and most of these are operated by the Standard and the K. T. and O. companies. Two years ago there were over 100 wells drilling in the Coalinga field. The Lost Hills, McKettrick and Kern River fields also show losses.

As has been stated, the coast fields are practically shut down so far as drilling is concerned. The only field where anything is being done is at Santa Maria, where eight strings of tools are in operation as compared with 33 two years ago.

In the southern fields also a decrease is noted, although there has been more general activity in these fields than in any of the coast or valley districts. Two years ago there were 131 wells drilling in the south. On December 31, 1913, there were 125.

The wildcatter under the existing conditions was not in evidence to any great extent. In San Diego county, where wildcatting has been going on for several years, there were four or five scattered holes being drilled, but San Diego is still a dry county. The Standard is drilling a wildcat in Orange county, near Olive, about five miles south of developments, but has not struck anything as yet. A test well is also being drilled near Redundo Beach about 25 miles south of Los Angeles. The Calabasas Oil Company, which has been for two years prospecting in the Santa Monica Mountains northwest of Los Angeles, has abandoned its work and moved its rig to a tract in the Simi valley south of the Santa Susanna pool. The three wildcat holes put down near Inglers Point, about four miles north of the Cat Canyon developments, have shown nothing to warrant further drilling.

The following shows the rigs built and the number of wells drilling in each month of the year:—

	Rigs. built.	Wells drilling.		Rigs. built.	Wells drilling.
January	60	303	July	48	357
February	56	356	August	62	312
March	78	362	September	57	325
April	83	397	October	27	313
May	51	392	November	17	2 9
June	48	373	December	20	267

Below is shown the number of wells drilling in each field on December 31, 1913, as compared with the situation one year previous:—

	Drilling—December 31, 1912.	Drilling—December 31, 1913.
Valley—		
Sunset-Midway	158	114
Coalinga	63	31
Kern River	5	4
McKittrick	15	8
Lost Hills	17	12
Coast—		
Santa Maria	18	8
Lompoc	2	....
Summerland	....	....
Watsonville	....	....
Salinas Valley	2	....
South—		
Fullerton	50	47
Salt Lake-Los Angeles	14	11
Whittier-Coyote	19	4
Ventura county	29	29
Newhall	2	....
Puente	1	....
Scattered	10	10
Totals	405	267
Summary—		
Valley fields	258	....
Coast fields	22	....
Southern fields	115	....
Scattered	10	....

There was a total of 438 wells completed during the year, a decrease of 230 from 1912. The number of wells abandoned during the year was 93, as compared with 95 in 1912. The number of wells producing December 31 was 5,788, an increase of 128 over a year previous.

The figures for each field is given below:—

	Completed. 1913.	Abandoned. 1913.	Producing Dec. 31, 1913.
Valley—			
Sunset-Midway	227	26	1,252
Coalinga	56	12	853
Kern River	20	....	1,202
McKittrick	59	8	350
Lost Hills	52	....	110
Coast—			
Santa Maria	20	12	100
Lompoc	4	....	30
Summerland	....	....	121
Watsonville	....	1	4
Salinas Valley	....	....	....
South—			
Fullerton	33	2	330
Salt Lake-Los Ang.	14	20	698
Whittier-Coyote	6	2	174
Ventura county	37	9	333
Newhall	1	1	78
Puente	....	....	64
Totals	538	93	5,788
For 1912	768	95	5,660
Summary, 1913—			
Valley fields	423	46	3,776
Coast fields	24	13	345
Southern fields	91	34	1,667

The same figures shown from month to month is given below. July shows the greatest number of wells completed with 67 and December the fewest with 32. The total number for the entire year was only 538, or 230 less than were completed in the previous year. This is a rather meager showing so far as numbers go, as compared with some of the Eastern States, but if results in production is considered, the number is sufficient:—

	Completed.	Abandoned.	Producing.
January	54	4	5,638
February	57	8	5,660
March	54	4	5,784
April	44	8	5,847
May	42	..	5,924
June	64	15	5,997
July	67	5	6,135
August	49	4	6,180
September	41	9	6,053
October	46	15	5,874
November	39	18	5,850
December	32	13	5,788
Totals, 1913	538	93	.....
Totals, 1912	768	95	.....
Increase in producing wells, 150.			

Stocks.

Nothwithstanding the tremendous increase in production of over 9,050,000 barrels, stocks increased less than 2,000,000 barrels. In 1912, when the output increased about 6,000,000 barrels, stocks jumped over 4,000,000 barrels. This comparison indicates how rapid has been the growth in consumption.

At the beginning of the year 1913 there were in storage 46,638,054 barrels. On December 31 the total stocks were 48,297,879 barrels, showing a net increase of 1,581,825 barrels.

Toward the latter part of the year it was evident that there would soon be a shortage recorded between production and deliveries, and it was only due to the large number of phenomenal wells that were brought in that an actual shortage did not occur. The present oil in storage is not considered excessive. Not one on the marketing concerns except the Standard has increased its stocks during the year. The Union Agency is said to have drawn on its stocks to the extent of a million barrels. The Standard as near as can be ascertained has 30,000,000 barrels in its storage tanks, but it appears the company is willing and anxious to increase its stocks rather than reduce them, from the fact that it is still running about 50 strings of tools and has also recently entered the market for more low grade oil. The company is also busy increasing its storage facilities at El Segunda, in the Midway, and at its storage farm in the Kern River field. None of the other marketing concerns are building any storage at present and have not for six months past, which shows conclusively where the surplus oil is going.

At present none of the Agency companies are shut down and the Agency is selling its entire production, which amounts to about 1,500,000 barrels a month.

The increase in stocks from month to month during the year is noted below. It will be seen that in March, April and May stocks were drawn on to the extent of nearly 1,000,000 barrels, and it was thought this condition would continue until a revival in drilling operations again brought up the production, but about this time a number of big gushers were brought in the Sunset-Midway field, whose combined output was sufficient to jump the production up, and a surplus was the result for the remaining months of the year.

TOTAL STOCKS.

	Barrels.
January 1	46,638,054
January 31	46,753,888
February 28	48,389,610
March 31	46,906,189
April 30	46,825,270
May 31	46,367,941
June 30	46,389,639
July 31	46,638,173
August 31	46,944,243
September 30	47,511,215
October 31	47,530,712
November 30	48,142,809
December 31	48,297,879
Net increase	1,581,825

Output and Value.

The wonderful growth of the oil business in California is one of the phenomena of the industrial world. In the year 1900, when the State first began to be recognized as an "oil State," the total output of petroleum was but 4,329,950 barrels, just about half of the present production for a single month. In the year 1913 the State's output had increased to over 99,000,000 barrels, and not the least remarkable feature of this development is that the markets have been able to absorb as great a quantity of oil as they have. As a matter of fact, development has been more rapid than it should have been, and during most of the thirteen years past production exceeded consumption and the producer has received but a fraction of the real value of his product. Consumers of fuel oil on this coast (and now there is no coal or wood used except for domestic purposes) have for years been buying their fuel at one-third the price they would pay for coal. This fact has resulted in a more rapid industrial development, but does not alter the fact that oil has been too cheap. The oil business at least is a hazardous one, and the producer is entitled to better than what would be considered a fair profit in an ordinary industrial enterprise.

The following table showing the output and value for the years from 1900 to 1913, inclusive, show what meager returns the producer has received, although the aggregate appears to be a substantial sum.

However, the men who are in the oil business at the present time are in it as a legitimate business proposition. The fly-by-night concerns have disappeared, and the operators now here will probably reap their reward in the days to come.

The total production for the period mentioned—thirteen years—was 644,000,000 barrels with a total valuation of $294,000,000, or an average of 45½ cents per barrel. With the exception of the year 1900, there was no period when the price exceeded 55 cents per barrel average. No consumer on this coast will deny the fact that oil at one dollar a barrel is the cheapest fuel and the best that can be obtained, and if he were obliged to pay one dollar and a half he would have no proper complaint to make.

It will be noted that the increase in output has been constant and rapid, increasing by millions of barrels each year.

The oil men best posted here assert that the output for 1914 will exceed that of 1913 and will go over the 100,000,000 barrel mark.

They say there will be a demand for that amount of oil and there is no disposition to reduce the present stocks on hand, if it can be avoided.

OUTPUT AND VALUE.

	Barrels.	Value.
1900	4,329,950	$4,152,928
1901	7,710,950	2,961,102
1902	14,356,910	4,632,189
1903	24,340,820	7,315,271
1904	29,736,083	8,317,809
1905	34,275,701	9,007,820
1906	32,624,000	9,238,020
1907	40,311,171	16,783,943
1908	48,306,910	20,590,181
1909	58,101,720	22,398,187
1910	77,769,546	28,853,173
1911	83,743,724	39,788,268
1912	90,078,440	45,085,005
1913	99,147,323	49,573,061
Totals	644,862,552	$294,732,247

Independent Agency Sales.

The Independent Producers Agency sold during the year a total of 16,650,000 barrels of crude. At the opening of the year its sales amounted to 1,250,000 barrels a month, a little less than the aggregate production of the Agency companies. The sales gradually increased until at the close of the year they amounted to 1,500,000 barrels a month—the entire production.

The price received by the members increased from 34 cents to 36½ cents per barrel, during the year. This was done to the expiration of some low priced contracts on which deliveries were completed. It was recently announced that no more contracts would be made by the Agency for fuel oil at a price less than 50 cents at the well, and it is believed the coming year a substantial advance will be received by the Agency producers.

The Producers' Agency consists of 175 separate producing companies which pool their oil with that of the Union Oil Company, and the latter concern acts as selling agent for the members. The arrangement has worked to the advantage of all concerned and it is the only organization of independent producers that has accomplished what it was intended to accomplish—the maintenance of prices.

Late in 1912, when the Standard issued an order that it would buy no more low grade oil, a number of producing concerns were left without a market. The Standard was buying their oil at 30 cents per barrel—four cents under the Agency price. The action of the Standard gave them the opportunity many of them were looking for, and they immediately applied for membership in the Agency. The Agency was at this time drawing to some extent on its stocks and wanted more production. The result was the Agency output was increased and the producers "thrown down" by the Standard received a higher price for their oil. Toward the close of the year the Standard again entered the market for low grade oil, but the concerns in a position to sell their oil to the Standard were few. Several contracts were made, however, for several million barrels, but the price demanded was 35 cents per barrel—five cents in advance of the price paid when the Standard ceased buying low grade a year previous.

The Independent Agency is given the credit for forcing this advance in price, and it is obvious that a producing concern will not sell its oil for less than the Agency price so long as the Agency doors are open to receive it.

The monthly sales of the Agency and the price received are given below:—

	Barrels.	Price.
January	1,250,000	$0.34
February	1,300,000	.34
March	1,350,000	.35
April	1,400,000	.35
May	1,500,000	.35
June	1,350,000	.35½
July	1,250,000	.35½
August	1,350,000	.35½
September	1,400,000	.36
October	1,500,000	.36½
November	1,500,000	.36½
December	1,500,000	.36½
	16,650,000	..

Some Big Producers.

During the year there were over thirty wells brought in that started with outputs in excess of 1,000 barrels a day, and while none of them equalled the famous Lakeview gusher, a number were sensational even from the California standpoint. There were scores of wells that showed an initial production of from 500 to 1,000 barrels a

day and are still producing several hundred barrels.

The reason for this is probably found in the fact that as drilling was curtailed and the territory drilled in was restricted, the operating companies confined themselves only to such territory as furnished the best producers. The Sunset-Midway district was recognized as the best potential gusher territory, and much of the drilling was done there and most of the gushers secured, although the Fullerton district furnished a number of gushers that were record breakers.

The banner well of the year was the Standard Oil Company's No. 10 on the McNee lease on section 26-31-23 in the Sunset-Midway. The initial output of this well is conservatively estimated at 20,000 barrels a day and it flowed wild for several weeks. Well No. 6 on the same property came in with a production of about 18,000 barrels a day. They were soon got under control and their output reduced somewhat, but with several other good wells in this lease the company at one time had a production here of 35,000 barrels a day. This land has been proven to be the richest of any in the field. A few years ago a Bakersfield man who owned it tried to sell it for $30 an acre and failed.

The Associated Oil Company brought in a well during the year on section 22-31-23, about three miles from the McNee lease, that started off at the rather modest figure of 10,000 barrels a day. The Kern Trading and Oil Company drilled in a gusher of equal capacity on section 27-31-23, about a mile south of the Associated gusher. These wells are all in the Buena Vista Hills section of the field, and at the close of the year were all producing at the rate of from 5,000 to 12,000 barrels a day.

The southern part of this field, however, also produced a number of gushers, notably the Obispo Oil Company's well on the Maricopa flats. This well came in at about 12,000 barrels and is still producing steadily at 8,000 barrels. In this immediate neighborhood, also, the American Oilfields, the General Petroleum, the Maricopa Queen, and the Midway Northern brought in wells whose initial output exceeded 5,000 barrels. Farther south in section 4-11-23, in territory that was considered wildcat stuff, the Lakeview Number Two Oil Company drilled in a well that started off at 3,600 barrels and is still producing 1,200 barrels a day.

In the northern part of the field the Union Oil Company got a 10,000 barrel gusher and it is still doing 8,000 barrels. The Mays Oil Company also drilled in one of about equal capacity.

The La Habra Valley also came in for considerable attention. The Standard Oil Company's No. 7 on the Emery lease came in at about 11,000 barrels. After producing for several weeks the output jumped to 13,000 barrels, and after the well was got under control the output was reduced to 9,000 barrels, at which point it still stands. The Amalgamated Oil Company on the Anaheim Water Company lease brought in an 8,000 barrel well, but it fell off rapidly and dropped to about 1,200 barrels. The Union Oil Company on the Graham-Loftus lease directly east finished up a 3,000 barrel well.

The Lost Hills also furnished two wells of unusual size—especially for that district. The Universal Oil Company and the General Petroleum each drilled in a well that produced and are still producing about 800 barrels a day.

It is this class of wells that kept up the wonderful production of the State during the year. That they will keep up their present gait is not probable, but it is more than probable that others equally as large will take their place. The sands in all the California fields are of such thickness, ranging from 100 to 1,200 feet, that the wells, even the gushers, are unusually long lived. There are wells now producing that were drilled thirty years ago, and very few, if any, producing wells drilled since the big fields were opened up about thirteen years ago, have been abandoned because they failed to produce any longer. The average daily production of the wells in California at the present time is about 50 barrels. This includes about 500 wells in the Summerland and old Los Angeles fields which are good for not more than two barrels a day, and also about 300 wells in Ventura county which do not exceed eight barrels a day each.

Big Events of the Year.

When the Shell-Royal Dutch Company entered California in 1912 and purchased sites at different points to be used as distributing stations for its refined products and modestly announced its intention to confine itself to the marketing of gasoline, the statement was received with a big grain of salt by those familiar with the operations of the big concern, and it was generally believed that the company had greater aims in view in California than peddling a few gallons of gasoline. Not much surprise was shown, therefore, when a few months ago it was announced that the Shell interests had purchased the properties of the California Oilfields, Ltd., located in the Coalinga field, paying therefor a sum said to be approximately $12,000,000. The "Limited," as it is called, is one of the best producing companies in the State. Its daily output is placed at 14,000 barrels of high grade oil. Since the advent of the Standard in California, this oil has always been run by the Standard Oil Company, and this may furnish a possible motive for the purchase of the property by the powerful rivals of the Standard. The new owners at once shut down all the wells that were not flowing and are delivering the minimum amount called for in its contract with the Standard. This contract expires early in 1914. The Shells also purchased the Turner Oil Company's property in the same field and has an option on the W. K. Oil Company's holdings, which will be exercised as soon as title can be given. This gives the new concern a daily production of about 18,000 barrels a day. That it will eventually go into the refining business seems certain, although nothing to that effect has yet been announced. It was reported that the same interests had purchased the big refining plant of the Refiners' and Producers' Company at Oilport near San Luis Obispo, but this has been denied, and it is known they own a large tract of land near Martinez on San Francisco Bay, and it is believed this will be the scene of their future operations. It is said that the present inactivity of the Shell people is the result of a desire to learn the decision of the State Railroad Commission on the common carrier pipe line bill. If the Standard and Associated are declared common carriers, as no doubt they will be, the Shells could use either of these company's lines to transport its oil to the bay, incidentally embarassing their competitors. It is reasonable to suppose, however, that in time they will build their own lines. The important thing is that the Shell-Royal Dutch Company is in California and has apparently come to stay.

Another event of importance was the passing of the control of the General Petroleum Company to a British syndicate headed by Andrew Weir. Mr. Weir is at the head of a shipping concern in London that is said to control 60 per cent of the shipping of England, and has recognized the growing importance of liquid fuel in marine operations, and also the fact that California will probably be called on in the near future to furnish most of the liquid fuel used, especially in steamships. The General Petroleum is the latest of the big concerns to enter the California field, but is already recognized as one of the "Big Four." It owns properties in every important field in the State and is rapidly increasing its properties, and is making itself felt in the competition for the big markets not only local but foreign. It has a pipe line connecting the Kern county fields with tidewater at Los Angeles harbor, the completion of which, by the way, was one of the events of the year, and it has under construction four oil carrying vessels to take care of its foreign trade. The Weir Syndicate is supposed to have purchased these properties primarily to furnish fuel for vessels controlled by it, but will doubtless continue as a marketing concern. This was made plain when Mr. Weir came to Los Angeles and entered into negotiations with the Union Oil Company officials to transfer an option on the control of the Union held by General Petroleum officials to the new concern. The deal hinges on the question of how the minority stockholders in the Union are to be taken care of, and owing to a difference of opinion negotiations were suspended, but, it is understood, in such a way that they can be resumed. The consolidation of the General Petroleum and the Union companies, it is conceded, would result in one of the strongest possible organizations on the coast not excepting the Standard, and it is not believed the interests represented by Mr. Weir will let so good a chance slip through their hands.

The completion of the General Petroleum pipe line from the Sunset-Midway field to the Los Angeles harbor will have a greater effect on the affairs of the southern producers than was at first supposed. Until this event the producers in the southern fields have been protected from the flood of oil produced in the San Joaquin valley by a railroad rate of 42 cents per barrel on oil from Bakersfield to Los Angeles. The southern producers had the Los Angeles markets, which were constantly growing, to themselves and were able to regulate production to such an extent as to get their price. The pipe line, however, enables the owners to lay oil down in the Los Angeles markets at 35 cents per barrel, which is the valley price, plus pipeage charges, which probably do not exceed 12 cents per barrel. The General Petroleum began doing business and had a big advantage, not only in the local markets, but in Arizona and Nevada points. The Standard has cut the price of oil in the Fullerton-Whittier districts and generally the effect has been to more nearly equalize prices.

The natural gas business was extended during the year and many towns that heretofore burned wood and coal are now supplied with natural gas. The gas line of the Midway Gas Company from the Buena Vista Hills in Kern county to Los Angeles has been completed about a year, but owing to delays in arriving at a proper price that should be charged for the gas (which matter is in the hands of the Public Utilities Commission) Los Angeles is still using manufactured gas. It is expected this will soon be adjusted, and natural gas will be turned into the city lines. A number of big gassers were drilled in during the year in the gas fields and the supply seems to be assured.

In June the first ship cargo of gasoline was received in California from the Orient, consigned to the American Gasoline Company, the name under which the Shell-Royal Dutch concern is marketing its products on this coast.

During the same month the ship that brought the above gasoline sailed from San Francisco with the first cargo of kerosene ever shipped from California to China. This was shipped by the Union Oil Company, and it has since then shipped several cargoes on a contract for a large amount of this product.

In September the Associated Oil Company took its place among the large refiners of the State by starting operations at its new refinery plant at Avon, the terminus of its pipe line in San Francisco Bay. The present capacity of the plant is 10,000 barrels a day, but it is stated it will soon be enlarged to a plant capable of handling 25,000 barrels of crude a day. Up to this time the Associated had confined its operations to the marketing of fuel oil, but was handicapped by its competitors.

One of the most far reaching events of the year was the passage by the State Legislature of a common carrier pipe line bill. This legislation was initiated and put through by independent producers, especially those who had been deprived of a market for their oil by the refusal of the Standard to accept low grade stuff. The bill is drastic in its provisions and places the affairs of all pipe line companies in the State in the hands of the State Railway Commission. The pipe line companies may declare themselves common carriers or in lieu of this must submit to a State tax of 50 cents per barrel on every barrel of oil transported. This latter provisoin is, of course, confiscatory and the pipe line companies will be obliged to accept the other alteration.

The Standard at once accepted the situation, declared its lines common carriers and submitted a schedule of rates to be charged from the various fields to tidewater. These rates are subject to revision by the railway commission. The commission also has the power to determine which lines come under the provisions of the law, and has spent several months taking testimony. Every pipe line company in the State except the Standard entered protests and at the close of the year no decision had been rendered by the State commission. It is more than probable, however, that the Standard, Union, Associated and Independent Transportation Company will all be declared common carriers.

The leasing of the entire holdings of the Murphy Oil Company in the WhittierCoyote district by the Standard Oil Company indicates that the Standard did not permit foreign capital to secure all the good things in the way of oil properties. The Murphy Company is the largest independent concern in the southern part of the State. The holdings consist of about 3,000 acres of land, much of which has been proved to be very rich. A large part of the property joins the Standard's Emery lease in the Coyote pool and an active campaign of development has been planned here by the new owners. The acquisition of this property gives the Standard the most extensive holdings of any in the south at present except the Union.

CANADIAN PETROLEUM REVIEW.

	Barrels.		Barrels.
1913	207,789	1909	420,000
1912	243,336	1908	528,659
1911	288,633	1907	779,876
1910	314,410		

Here we have a table of figures showing the steady decline of oil production in Canada. The Canadian output of petroleum a few years ago was 50 per cent. of domestic consumption. At present not even 5 per cent. of Canadian consumption of petroleum is derived from domestic sources, unless this falling off is met and overtaken by the development of new fields in Alberta; at present there is no commercial output of oil from that territory, but if the millions of money invested in exploration, testing and boring bring expected results, the total yield of petroleum of Canada will, ere many years pass any total yet reached. Dr. Eugene Coste calculates that to test the Dakota sand at Calgary and Alberta district requires a well approximately 5,000 feet in depth. Along the Athabasca River there are great asphalt seepages. What of the great belt in Tilbury, Petrolia, Chatham and district which for so many years showed phenomenal production of petroleum, but of late years has been declining?

The oil production in Lambton county, coming from the famous Oil Springs and Petrolia pools, amounted in 1912 to about 200,000 barrels. Production is decreasing regularly, and wells are being abandoned from the outer edge of the pool inward. In the Petrolia pool about 4,000 wells are still producing, as against 7,000 in 1910. The abandonment has been at a slightly less rate in the Oil Springs pool. No water problem has developed, and this field exhibits the comparatively rare phenomenon of an oil pool declining from the single cause of the exhaustion of the underground supply. No new wells are being drilled in Lambton county. The Bothwell pool in Kent county is exhibiting similar characteristics. The field still produces from 2,500 to 3,000 barrels per month, and shows no sign of exhaustion, although no new wells are being drilled. At Dutton, some oil is still being produced from the Medina formation, but the pool is on the decline and no new production is taking its place.

Wells in the new field in Onondaga township, Brant county, for which large predictions were made, have declined rapidly. The oil comes from a close, fine-grained sand, and since the gas is being drained from the pool rapidly, the production of the oil wells is declining, although the average is kept up to some extent by drilling new wells. In 1912 the production of this field was about 2,500 barrels of oil per month, and about 10,000,000 cubic feet of gas per month was being used in Brantford and the vicinity from this pool. The initial rock pressure of 235 pounds when the pool was discovered two years ago has declined to 175 pounds. The oil wells have an average production of one barrel of oil per day, all being pumpers. Wells are spaced too closely in most parts of the pool. A plant for the recovery of gasoline from the casing-head gas of this pool has been erected, but in July, 1912, it had not been operated.

The oil production in the vicinity of Leamington, in Essex county, was abandoned in 1907, the district having been flooded by salt water. The prolific pools at Petrolia and Oil Springs, in Lambton county, continue to produce, showing a steady annual decline, as no new wells are being drilled. The same applies to the Bothwell field in Kent county, which exhibits the same characteristics as the pools in Lambton county. Careful methods of production, combined with very favorable underground conditions, have made the production of these pools a remarkable one, considering the small average production per well. In 1910 a new oil field was discovered and is being developed in Onondaga township, Brant county. The field also produces some gas, but owing to the character of the productive formations, the composition of the oil, and the rapid decline of the gas pressure, the pool does not promise as long a life as that of the older fields.

The following is a detailed statement of the Canadian crude oil production by districts in 1913:—

	Petrolia, (including all districts not enumerated).		Dutton—	
	Bbls.	Gals.	Bbls.	Gals.
January	9,822	8	94	6
February	6,840	23	393	3
March	4,877	19	404	14
April	5,859	8	151	..
May	9,830	2	486	5
June	9,266	2	362	28
July	8,480	1	638	9
August	9,234	10	561	26
September	8,079	4	342	5
October	8,256	25	290	6
November	6,984	24	453	14
December	8,434	18	247	33
	99,635	4	4,235	9
	Oil Springs—		Bothwell—	
	Bbls.	Gals.	Bbls.	Gals.
January	2,881	29	1,617	30
February	1,975	8	2,408	5
March	3,327	31	2,903	25
April	4,063	19	2,763	22
May	3,839	15	2,706	21
June	5,055	26	2,848	10
July	5,707	11	2,728	29
August	4,710	24	2,417	8
September	5,084	16	2,808	27
October	5,248	16	2,541	1
November	2,835	32	2,598	17
December	1,547	10	3,241	23
	45,677	27	31,345	9
	Blakely (including Richardson).		Onondaga, (including Gainsville).	
	Bbls.	Gals.	Bbls.	Gals.
January	....	..	146	20
February	277	24	....	..
March	....	..	....	..
April	56	3	....	..
May	....	..	309	21
June	219	15	155	5
July	....	..	....	..
August	....	..	....	..
September	137	28	146	26
October	....	..	....	..
November	....	..	331	5
December	283	10	140	25
	974	10	1,228	32
			East Tilbury—	
			Bbls.	Gals.
January			2,169	8
February			2,338	18
March			2,321	16
April			2,047	25
May			2,813	28
June			2,084	18
July			2,243	14
August			2,194	19
September			1,918	30
October			2,011	15
November			1,578	22
December			1,747	34
			25,471	2
			Bbls.	Gals.
Glenwood			114	17
Indian Reserve			107	15
			221	32

Total year's production, all districts, 297,788 barrels, 20 gallons. Barrels are of 35 imperial gallons.

John Scott, inspector of gas and oil wells, reports that 201 oil wells were abandoned during 1912. Of these 89 were in the township of Enniskillen, 36 in Tilbury, 25 in Sarnia, 19 in Moore, 18 in Raleigh, 6 in Caradoc, 5 in Mersea and 3 in Plympton. Many others would also have been abandoned had it not been for the advance in the price of crude oil. Pumps have been removed from 625 wells not abandoned, and there are now about 600 wells being baled.

The latest figures in refined oil are those of 1912, when exports were 36,945 gallons, valued at $6,147, and 489 gallons, valued at $73, in 1911. There was an export in 1912 of naphtha and gasoline of 25,791 gallons, valued at $4,261, and also an export of other oils of 397,039 gallons, valued at $119,686, which may have included products of petroleum.

While the production has been decreasing, the imports have been increasing; the total import of petroleum oils, crude and refined, in 1912, was 186,787,484 gallons, valued at $11,858,533, in addition to 2,144,006 pounds of paraffin wax and candles, valued at $119,520. The oil imports included:—Crude oil, 120,082,405 gallons, valued at $3,996,842; refined and illuminating oils, 14,748,218 gallons, valued at $1,012,735; gasoline, 40,904,598 gallons, valued at $5,347,767; lubricating oils, 6,763,800 gallons, valued at $1,077,712, and other petroleum products, 4,288,463 gallons, valued at $423,477. These figures are an increase of from 30 to 70 per cent. over 1911, and it is probable that a still further increase quite as great took place in 1913.

The natural gas fields last year yielded 12,414,000 cubic feet of gas, which is valued at an aggregate of $2,268,022, being at the rate of more than 18 cents per thouasnd cubic feet. The previous year the output was valued at $2,186,762. No new fields or marked extensions of old ones were brought in during the year, but the productive area now occupies a large part of the northern and eastern shores of Lake Erie. The eastern field, including the counties of Welland, Haldimand, Norfolk and Brant, is of greater extent, but Kent county yields nearly two-thirds of the entire production.

In Welland, Haldimand, Norfolk and Elgin counties the larger companies are making strenuous efforts to discover gas. In Haldimand county some new gas has been developed at Selkirk, and along the lake front in this vicinity, and also at Canborough in the northern part of the county. A gas field has also been developed within the past five or six years in Tilbury, Romney and Raleigh townhsips in Kent county. The gas from this field is consumed in Kent, Essex and Lambton counties. In Norfolk county the Dominion Natural Gas Company has developed a gas field south of Simcoe, and this company is trying to extend it southwest to Port Royal and Port Rowan. The gas is piped to Hamilton and intermediate points. At Delhi in the same county a local company has drilled a half dozen gas wells inside the town limits within the past two years, the gas being used for local consumption. In Elgin county the companies are developing a promising pool in Bayham township in the vicinity of Vienna and Port Burwell. Pipe lines from this district supply the towns of Tilsonburg and Aylmer.

The gas from the Welland, Haldimand, Norfolk and Elgin county fields is all found in the Clinton and Medina formation, at depths varying from 500 feet in Welland county to 1,400 feet in Bayham township in Elgin county. The Tillbury-Romney pool, however, produces gas from just below the Big Lime, in depth from 1,425 to 1,450 feet. The Clinton and Medina formations west of Chatham are too broken and shaly to contain oil or gas.

In both Caistor and Canborough townships in Haldimand county the rock pressure averages 200 pounds, while the wells produce from 46,000 to 800,000 cubic feet per day. At Selkirk the pressures are about the same, although originally the initial pressure was near 500 pounds. The wells average less than 200,000 cubic feet initial production. A few small gas wells at Middleport and Caledonia average from 40 to 130 pounds pressure, with correspondingly small production. The six gas wells at Delhi, Norfolk county, produce 2,000,000 cubic feet per day, and have a rock pressure of 375 pounds, this having been initially over 500 pounds. The pressures in the Simcoe pool were initially from 560 to 650, although they have declined to about 350 pounds at present. The wells range in production from 15,000 to 500,000 cubic feet per day. A similar condition is true of the Vienna pool in Bayham township, Elgin county, although the initial pressures here were as high as 780 pounds, with correspondingly high production. The field has been drawn upon for only a year, since the completion of the pipe line to Tilsonburg. These fields all produce from the Clinton and Medina formations. The Tilbury-Romney pool in Kent county produces about 15,000,000 cubic feet per day from approximately 110 producing wells. The pressure in this district is about 600 pounds.

In New Brunswick the Maritime Oilfields, Limited, has continued drilling and has brought in some gas wells of large volume, which are piped to supply Moncton, a city of 12,000 inhabitants. The field is one of considerable promise, and the company mentioned has a lease of ninety-nine years on 10,000 square miles of supposed oil and gas territory. This company has taken over the holdings of the New Brunswick Petroleum Company. The first gas went through the line on March 23, 1912, and Moncton is the only city in New Brunskick supplied with natural gas, although the gas is piped to the village of Hillsborough.

The development lies in the vicinity of Stony Creek. In July, 1912, there were fifteen productive wells in the field, fourteen of which produced gas. Several are pumping oil to the amount of one barrel or so per day, most of which is found near the east side of the belt. Twenty-five wells have been drilled in all. The production of the gas wells runs as high as 6,000,000 cubic feet per day, and one well had an initial production of 12,000,000. The present production of the field is reported to be 58,000,000 cubic feet of gas per day. The rock pressure runs as high as 500 pounds.

Natural gas development in Alberta, which was started at Medicine Hat in 1891 by a well drilled in search of coal, has grown to large proportions within the past two years. The principal centres of production at present are the town of Medicine Hat and its environs, which produce from 25,000,000 to 30,000,000 cubic feet per day, and the Bow Island district, situated forty miles west of Medicine Hat, which produces about 75,000,000 cubic feet per day. From the latter district a pipe line has been laid for the purpose of supplying the city of Calgary, 160 miles distant, and fourteen other municipalities along the route. No other gas of importance has been developed in Southern Alberta.

In the Medicine Hat field the gas is found in several formations at depths ranging from 200 to 1,300 feet. The principal producing sand, however, is encountered at from 1,000 to 1,300 feet in depth. The rock pressure is about 560 pounds, and the volumes of individual wells are between 1,000,000 and 7,000,000 cubic feet per day.

In the Bow Island field the important productive stratum is encountered at about 2,200 feet in depth, and is generally correlated with the Dakota sandstone, although Dr. Eugene Coste believes it to be of Niobrara age. There are fourteen producing wells in this field, all owned by the Canadian Western Natural Gas, Light, Heat and Power Company, Limited. The initial production ranges from 2,000,000 to 24,000,000 cubic feet per day per well, with a rock pressure of 800 pounds.

Compared with the cost of drilling in the eastern and mid-continent fields, the expense in Alberta is very high. In the Medicine Hat field the drilling of gas well is contracted for at prices ranging from $6.50 to $8 per foot, depending upon the diameter at which the hole is finished. In the Bow Island field the first wells cost as much as $20,000 each and the present outlay is in the neighborhood of $16,000 for a 2,200-foot gas well.

ROUMANIAN PETROLEUM REVIEW.

The Balkan war was the dominant feature of the year 1913, and the petroleum industry, as indeed all the economical life of Roumania, had to suffer the influence of the war. For a long time our country stood a simple spectator awaiting the developments; but when the Turkish empire was vanquished and the victorious allies, at the division of their conquest turned their arms against each other, nearly provoking an European conflagration, Roumania considered it their duty to interfere and mobilize their army. They immediately crossed the Danube, invaded Budgaria and with an astonishing rapidity arrived in a few days at a small distance from Sofia, the Bulgarian metropolis.

During June, July and August, that is during the mobilization, the military action and the demobilization, the petroleum industry had to suffer in the first place from shortage of workmen, the greater part of workmen and employes having been obliged to join the r regiments, and in the second place from lack of transportation facilities, all the goods traffic on the railroads having been entirely stopped.

As a consequence, the crude oil production, as was natural, had to suffer a substantial decline, while the refineries were unable to run to their former capacity, and the exports were considerably reduced. However, on account of the prevailing high prices of petroleum products, the petroleum industry could sustain all these drawbacks without great inconvenience.

Notwithstanding the trouble caused by the political events the crude oil production, the work of the refineries and the exports have not shown lower figures in comparison with those of the foregoing year.

The petroleum industry has had the advantage of a great demand for all the products they supply the foreign markets with, and especially for the liquid fuel, which caused the figures of the exports to be increased to a large extent. While some years ago the refiners were at a loss what to do with their residuals, they are now striving to get as much as possible of this product.

In proportion with the increased demand, the prices rose and reached a level which nobody would have immagined some years ago. The consequence was very fortunate for our petroleum industry, but it caused a movement of the other industrials who protested against the high fuel oil prices. The petroleum industry has made concessions in this regard, but they could not make too great sacrifices without endangering the prosperity of their own industry.

As a result of the high fuel oil prices, which naturally gave the railroad management much to think, the question of the exploitation of the government oil lands and the payment in kind of the royalty and the mining taxes due to the government, was again discussed in all the interested circles. But no decision has been taken regarding these measures, although the former one is of great importance for the petroleum industry.

Another consequence of the upward move of prices for products has been the considerable rise in price of crude oil, which favored new drilling work. In this way the value of the crude oil produced rose in a larger proportion than the production itself.

In such conditions it was natural that foreign capital should look out for investments in our petroleum industry, and we can state that there was a considerable flow of English capital in Roumanian oil enterprises.

The French capital, too, owing to the good results obtained by the Colombia company, began to get in touch with our petroleum industry, while the Dutch capital continued to favor our petroleum trade.

The German capital never ceased to strenghten its position. The Steaua Roumana company has doubled its capital, raising same from 50 to 100 million francs. Our petroleum industry has become of great importance to Germany since they wish to establish the monopoly for illuminating oil, and since the liquid fuel has become so necessary for the navies. It is from Roumania only that Germany can secure its illuminating oil and liquid fuel by the Danube road or by rail in case of a war which would establish a blockade of its coasts.

The year 1913 witnessed a serious movement for a larger use of the Danube for the import into Germany of Roumanian petroleum products. The Regensburg harbor is destined to take a great development, and offers for this all the conditions required.

Great activity has been displayed in our oil fields with a view to increase the crude oil production and a good deal of wildcat work has been done during 1913 which in some way has been successful. Thus the "Runcu" region located between Bordeni and Gropi was explored, while the lands north of Bushtenari have proven to be oil bearing, thus extending northward this region which has played such an important part in the development of the petroleum production in Roumania. A new oil zone has been determined at "Baicoi," which opens large area for the operators, while the rich Moreni field, which is the most prolific in Roumania, has been extended westward. The exploration work at "Ceptura," begun in 1912 has continued, and there is hope that it will be successful, but at "Filipesti de Padure" the technical difficulties have not been removed yet.

During the year 1913, the petroleum industry, even before the mobilization period, had to suffer great troubles for lack of transportation facilities. Although the big companies have their own tank cars and also own some locomotives, the transportation of products on the railroads could not be effected in a regular way and the companies could only, with great difficulties supply at Constantza, the quantities of products necessary for exports.

However, had there been no mobilization in Roumania, the year 1913 would have been for the petroleum industry in every respect a brilliant one, and the results for the operators and the petroleum enterprises would have been exceedingly bright. But even as it was, the year 1913 can be considered as a good one for the Roumanian petroleum industry.

The following table shows the crude oil production of Roumania, by months and districts, for 1913, as compared with the year 1912, in metric tons:—

Crude Oil Production of Roumania.

[In metric tons.]

	District Prahova—		
	Moreni field.	Bushtenari, Bordeni, Chiciura, Gropi.	Campina, Poiana.
	1913.	1913.	1913.
January	85,481	30,869	22,285
February	76,685	25,265	21,596
March	73,637	25,119	23,151
April	88,087	23,619	21,298
May	84,617	24,488	22,160
June	88,862	24,993	21,327
July	84,481	24,185	20,881
August	88,167	20,672	19,219
September	82,979	20,390	17,536
October	88,454	27,013	18,454
November	61,764	20,464	17,962
December	75,468	23,676	17,353
	981,682	296,792	243,221

	District Prahova—Continued—			
	Other fields.	Total		
	1913.	1912.	1913.	
January	12,635	111,951	151,270	
February	10,386	125,110	133,941	
March	16,021	122,296	142,928	
April	15,321	127,642	146,325	
May	12,476	127,646	143,741	
June	12,158	144,286	147,340	
July	11,735	154,243	141,282	
August	10,167	134,866	138,225	
September	14,260	151,300	135,174	
October	14,148	146,852	146,399	
November	12,886	128,637	119,086	
December	13,232	139,872	129,729	
	153,745	1,614,701	1,675,440	

	District Buzau—		Dist. Dambovitza.	
	1912.	1913.	1912.	1913.
Jan.	4,290	9,032	9,105	3,356
Feb.	5,616	8,512	11,965	2,838
March.	5,537	10,217	10,384	2,710
April.	6,693	10,107	6,678	2,734
May.	8,124	10,162	6,523	3,499
June.	8,807	10,078	5,232	3,874
July.	7,014	8,880	5,175	3,739
Aug.	6,450	9,167	4,914	3,540
Sept.	7,614	11,306	3,726	3,455
Oct.	8,999	12,055	4,124	3,447
Nov.	7,954	12,002	3,806	3,781
Dec.	10,203	13,638	3,684	4,525
	87,271	125,736	74,316	41,498

	District Bacau—		Grand total—	
	1912.	1913.	1912.	1913.
Jan.	2,332	2,106	127,648	166,331
Feb.	2,950	2,462	145,841	147,753
March.	1,394	2,767	139,612	158,622
April.	2,261	4,517	143,273	163,683
May.	3,408	4,014	144,701	161,416
June.	3,305	3,798	161,630	165,090
July.	2,960	2,365	169,391	156,265
Aug.	2,399	2,733	148,629	153,966
Sept.	1,699	3,637	164,339	153,572
Oct.	1,971	3,776	161,946	165,677
Nov.	1,901	4,021	142,298	138,800
Dec.	1,894	3,968	155,653	151,860
	28,473	40,161	1,804,761	1,882,825

From this table it will be seen that the total production of Roumania for 1913 was of 1,882,825 tons, as compared with 1,804,761 tons for 1912, being an increase of 78,064 tons, only 4.2 per cent., on account of the political events.

Prahova continues to be first of the oil producing districts with an output of 1,675,440 tons, as compared with 1,614,701 tons in 1912, participating with 89 per cent. in the total production of the country.

Buzau, owing to the increased output of the Policiori-Arbanasi field, has taken the second place, formerly held by Dambovitza. It participates with 6.66 per cent. in the country's total production.

Dambovitza, now ranks in the third place with a participation of only 2.20 per cent., due to the decline in production of the Gura-Ocnitzer field. But a good deal of drilling work is being done to raise the production.

Bacau showed a small increase of its production, participating with 2.13 per cent. in the total production of the country. Its output for 1913 was of 40,161 tons, as compared with 28,473 tons for 1912.

Among the producing fields Moreni continues to be in the front with a production of 981,682 tons, as compared with 879,039 tons for 1912, being a gain of 103,643 tons. This field alone participates with more than 50 per cent. in the total production of the country. The great increase in the Moreni field's production is due to the famous gusher of the Colombia Company, which has given about 400,000 tons, also to the Romano-Americana Company's eruptive well No. 8, and to a great number of other eruptive wells of the Astra Romana Company. The big fire which occurred on October 20 at Moreni and destroyed eighteen wells, among which the Colombia Company's gusher and the Romano-Americana's No. 8, with a daily output of about 900 tons, caused for a while the production of this field to decline, but in a short time most of the wells, could be repaired and resumed their yield. The second place is now held by Bushtenari, with its surroundings Bordeni, Gropi and Chiciura, with an output of 296,792 tons, participating with 16,24 per cent. in the total production of the country. The prospects for this field are bright, development work being started south at Chiciura and Gropi, and pushed at Bordeni, also north where the known petroleum zone has been considerably extended by new wells brought in at the locality Puturosu.

Then comes Campina with an output of 243,221 tons as against 295,144 tons for 1912, showing a decline of 51,923 tons, due to the less intensive exploitation of the Steaua Romana Company, who owns this field almost entirely. After this comes Policiori-Arbanash, Tzintea, Baicoi, etc.

The situation of the boring work at the end of 1913 as compared with 1913 is given in the following:—

Situation of Wells.

NOVEMBER 30, 1913.

	Hand-dug wells.			Drilling wells.		
	Aban-doned.	Drill-ing.	Pro-duc-ing.	Aban-doned.	Drill-ing.	Pro-duc-ing.
Dist. Prahova—						
Moreni	..	2	..	66	72	89
Bushtenari	212	40	92	278	26	420
Campina	..	..	..	69	48	129
Baicoi	9	6	6	10	13	10
Tzintea	..	3	..	17	30	38
Other fields	64	35	16	47	151	73
	285	86	114	487	340	759
District Dambovitza—						
Gura Ocnitzei.	65	6	10	11	8	18
Colibasi	48	2	5	6	1	4
Glodeni	10	..	33	1	1	..
Other fields	15	..	8	2	..	1
District Buzau.	59	2	44	26	35	67
District Bacau.	462	22	320	15	12	87
	944	118	534	548	397	936

NOVEMBER 30, 1912.

	Hand-dug wells.		Drilling wells.			
	Aban-doned.	Drill-ing.	Pro-duc-tive.	Aban-doned.	Drill-ing.	Pro-duc-tive.
Dist. Prahova—						
Moreni	..	9	..	64	67	77
Bushtenari	180	20	83	245	47	405
Campina	39	4	8	48	30	131
Baicoi	6	1	3	14	2	11
Tzintea	9	2	1	16	30	33
Other fields	56	30	4	28	45	43
	290	66	99	415	230	700
District Dambovitza—						
Gura Ocnitzei	53	9	15	17	13	14
Colibasi	47	..	5	6	..	5
Glodeni	22	..	33	2	2	..
Other fields	17	1	5	..	1	..
District Buzau	59	2	44	21	32	47
District Bacau	472	28	307	36	14	53
	960	106	508	497	292	819

From the above table it will be seen that the number of producing and drilling wells decreased; yet the production showed an increase owing to several prolific wells brought in during the year.

The demand for crude oil and products in the home market as well as for exports was very active during the year under review, and the favorable price conditions prevailing at the end of the foregoing year have been maintained during the year 1913. The quotations for crude and products remained steady and gradually rising, reached very remunerative rates. From 6 to 20 francs at the beginning of the year, Bushtenari crude attained 8.30 francs per 11 kilos in December 1913, while the Bana grades were sold at 9.50 francs per 100 kilos. The other varieties of crude followed the same upward level. The prices for products, especially those for benzine and residuals, rose in the same proportion.

The following table gives, by months, the prices for crude oil and for products, home market and exports:—

Prices of Crude Oil, Benzine, Refined Oil and Residuals.

[In francs per 100 kilos.]

HOME TRADE.

	Crude oil— Bushtenari		Crude oil— Moreni		Crude oil— Tzintea	
	1913.	1912.	1913.	1912.	1913.	1912.
Jan.	6.20	3.70	5.00	3.05	3.50	2.05
Feb.	7.10	3.65	5.50	3.05	3.50	2.60
March.	7.00	3.65	5.50	3.05	3.50	2.80
April.	7.25	3.70	5.75	3.30	3.50	2.80
May.	8.00	3.85	6.75	3.40	4.50	2.80
June.	7.80	3.95	6.75	3.60	4.50	2.65
July.	7.75	3.95	6.75	3.60	4.50	2.50
Aug.	7.30	3.95	6.50	3.60	4.75	2.50
Sept.	7.00	4.30	6.25	3.60	4.40	2.55
Oct.	7.50	4.40	6.50	3.60	5.20	2.70
Nov.	8.00	4.90	7.50	4.00	5.75	3.00
Dec.	8.10	5.25	7.50	4.20	5.75	3.00

	Crude oil— Continued. Bana.		Benzine— *710-720—		Benzine— 750-760—	
	1913.	1912.	*1913.	1912.	1913.	1912.
Jan.	..	..	..	21.00	24.00	10.50
Feb.	..	..	0.30	21.00	24.00	10.50
March.	8.25	..	0.30	21.00	24.00	10.50
April.	8.25	..	0.30	24.00	19.00	10.50
May.	8.60	..	0.30	24.00	19.00	10.50
June.	8.50	..	0.35	24.00	19.00	12.50
July.	8.50	..	0.35	24.00	19.00	12.50
Aug.	8.75	..	0.35	24.00	19.00	12.50
Sept.	8.50	..	0.30	25.00	19.00	14.00
Oct.	8.75	..	0.35	25.00	20.00	14.00
Nov.	9.50	..	0.35	25.00	20.00	14.00
Dec.	9.25	..	0.35	32.00	20.00	17.00

* Per liter.

	Refined oil— 1913.	1912.	Residuals— 1913.	1912.
January	7.80	7.80	4.40	3.00
February	7.80	7.80	4.50	3.00
March	7.80	7.80	5.00	3.05
April	7.80	7.80	5.00	3.05
May	7.80	7.80	5.10	3.05
June	7.80	7.80	5.10	3.40
July	7.80	7.80	5.10	3.40
August	7.80	7.80	5.40	3.40
September	7.80	7.80	6.00	3.60
October	7.80	7.80	6.30	3.90
November	7.80	7.80	6.30	3.90
December	7.80	7.80	6.30	4.20

EXPORTS.

	Benzine— 710-715—		Benzine— 750-760—	
	1913.	1912.	1913.	1912.
January	30.00	15.50	20.00	8.50
February	32.00	15.50	20.00	8.50
March	32.00	17.50	22.00	9.50
April	30.00	17.50	19.00	9.50
May	31.00	18.50	19.00	10.00
June	30.00	20.00	19.00	11.00
July	30.00	20.00	19.00	11.00
August	29.00	20.00	19.00	11.00
September	28.00	25.00	17.00	12.50
October	28.00	25.00	18.00	12.50
November	28.00	25.00	18.00	13.50
December	28.00	30.00	18.00	16.00

	Refined oil— 1913.	1912.	Residuals— 1913.	1912.
January	7.25	5.00	4.75	..
February	7.25	5.50	5.00	..
March	7.25	5.75	5.50	..
April	7.00	5.75	5.50	2.90
May	7.00	6.00	6.00	2.90
June	7.00	6.00	5.75	3.00
July	7.00	6.00	5.75	3.00
August	6.75	6.00	6.50	3.00
September	6.75	6.00	6.00	3.60
October	6.75	6.00	7.00	3.90
November	6.75	6.00	7.00	4.00
December	6.75	6.00	7.00	4.50

As stated at the beginning of this review, the Roumanian refining industry had to suffer during the period of mobilization shortages in their working staff, and therefore was obliged to reduce considerably their work. But the large companies, who had to deliver on basis of contracts, developed an extraordinary activity in order to fulfil their engagements. The following figures give the quantities of crude oil run and of the products obtained in the various refineries during the first eleven months of 1913, as compared with the same period of 1912, by months, the figures for December 1913 not being available as yet:—

Crude Oil Run and Products Obtained in the Refineries.

[In metric tons.]

	Manufactured in 1912— Benzine.	Illuminating oil.	Mineral oils.	Residuals.
Jan.	22,439	24,653	2,071	68,108
Feb.	22,232	23,121	3,451	67,685
March.	21,599	19,720	3,867	56,863
April.	30,718	30,255	3,524	83,440
May.	32,161	32,297	4,248	83,032
June.	33,355	33,024	5,586	81,428
July.	30,945	28,871	4,406	76,568
Aug.	27,590	26,618	3,772	70,785
Sept.	34,036	34,676	4,473	81,646
Oct.	34,598	33,525	3,063	80,770
Nov.	31,310	28,246	3,213	77,091
Dec.	.....	.....	.....	.....
	329,983	315,006	41,674	827,416

	Crude oil run.	Total of products obtained in 1912.
January	119,965	117,271
February	118,520	116,489
March	103,823	102,049
April	150,601	147,937
May	154,292	151,738
June	156,105	153,393
July	144,393	140,799
August	131,017	128,765
September	157,431	154,831
October	154,204	151,956
November	141,813	139,860
December	.....	.....
	1,532,074	1,505,079

	Manufactured in 1913— Benzine.	Illuminating oil.	Mineral oils.	Residuals.
Jan.	30,507	36,645	1,583	71,636
Feb.	28,255	30,483	1,802	67,938
March.	41,039	37,583	3,562	86,029
April.	36,274	35,357	4,292	80,813
May.	35,287	29,089	4,578	76,825
June.	36,404	31,152	3,826	73,137
July.	27,344	23,372	4,561	55,813
Aug.	30,931	25,851	4,217	61,185
Sept.	41,252	34,303	5,241	84,509
Oct.	41,536	37,158	5,284	89,791
Nov.	39,418	33,017	5,056	90,263
Dec.	.....	.....	.....	.....
	388,247	350,010	44,062	837,939

	Crude oil run.	Total of products obtained in 1913.
January	138,438	136,371
February	130,315	128,538
March	170,271	168,213
April	158,589	156,736
May	148,939	145,779
June	147,363	144,519
July	112,786	111,090
August	123,951	122,184
September	168,974	165,305
October	176,855	173,769
November	171,076	167,754
December	.....	.....
	1,647,557	1,620,258

From the above it will be seen that during the eleven months of 1913 a quantity of 1,647,557 tons of crude oil was treated in the refineries, as compared with 1,532,074 tons for the same period of the preceding year, being in excess with 115,483 tons.

From the 1,647,557 tons crude treated the following quantities of products were obtained:—

	1912. Tons.	1913. Tons.	Difference. Tons.
Benzine	329,983	388,247	+67,264
Refined oil	315,006	350,010	+35,004
Mineral oils	41,674	44,062	+ 2,388
Residuals	827,416	837,939	+10,523

The percentages were as follows:—

	Per cent.
Production of benzine	23.56
Production of refined oil	21.24
Production of mineral oils	2.67
Production of residuals	50.87

The home consumption of petroleum products continued to increase in a satisfactory way, owing to the steady development of the various industries, which almost without exception are now using liquid fuel, and to the efforts made by the distributing company to extend over the whole country their selling organization.

The following table gives the quantities of petroleum products delivered to the home consumption in the first eleven months of 1913, by months, as compared with the same period of 1912:—

Home Consumption.

[In metric tons.]

	Delivered to home consumption, 1912— Benzine— Rectified.	Benzine— Denatured.	Illuminating oil.	Mineral oils— Lubricating.	Mineral oils— Denatured.	Residuals.
Jan.	92	2,214	5,121	446	1,740	37,386
Feb.	57	2,535	4,555	687	1,228	54,147
Mar.	89	2,167	1,670	844	1,581	49,467
April.	53	2,179	4,254	666	1,581	43,986
May.	56	2,586	2,387	1,124	1,679	46,526
June.	48	2,293	1,936	1,139	1,521	42,892
July.	62	2,977	2,204	923	1,401	40,916
Aug.	68	2,803	3,928	713	1,530	41,539
Sept.	55	2,592	5,245	742	1,529	38,547
Oct.	78	2,904	5,468	725	2,352	44,501
Nov.	60	2,506	5,954	483	2,005	48,515
Dec.	..	....	....	....	....	.....
	699	27,396	42,720	8,492	18,147	488,416

	Burnt in the refineries.	Total of home consumption for 1912.
January	12,074	59,073
February	11,114	74,323
March	10,078	65,827
April	12,066	64,868
May	12,239	66,597
June	11,653	61,482
July	11,044	59,517
August	10,842	61,423
September	12,006	60,714
October	12,902	68,330
November	12,405	71,928
December	.....	.....
	128,152	714,042

	Delivered to home consumption, 1913— Benzine— Rectified.	Benzine— Denatured.	Illuminating oil.	Mineral oils— Lubricating.	Mineral oils— Denatured.	Residuals.
Jan.	36	2,764	5,491	523	1,943	45,582
Feb.	55	2,113	4,424	596	1,949	50,793
Mar.	34	2,415	6,060	571	2,149	55,603
April.	39	2,202	840	690	2,154	46,944
May.	37	2,214	1,939	875	2,027	49,031
June.	28	2,029	1,727	1,048	1,928	41,258
July.	29	2,850	2,400	531	2,033	44,882
Aug.	41	2,061	3,121	655	1,953	38,030
Sept.	57	2,562	4,862	510	2,220	41,957
Oct.	79	2,647	6,213	710	2,789	46,271
Nov.	54	2,809	7,533	646	2,782	45,884
Dec.	..	....	....	....	....	.....
	489	26,666	44,610	7,355	23,706	506,280

	Burnt in the refineries.	Total of home consumption for 1913.
January	13,106	69,445
February	11,806	71,735
March	11,842	78,674
April	11,118	63,987
May	11,732	67,855
June	10,507	58,340
July	8,348	61,073
August	9,758	65,619
September	11,353	63,530
October	13,246	71,955
November	11,654	71,362
December	.....	.....
	124,469	733,575

From the above figures it will be seen that the total consumption, including, the quantities burnt in the refineries amounted to 733,575 metric tons, as compared with 714,042 tons for the preceding year, showing a small increase of 19,533 tons, only.

The export movement can be considered as very satisfactory and might have been far more important, but for the mobilization and the stoppage for a certain period of all transportation on the railroads.

The following table shows by months, the figures of the exports of petroleum products in 1913, as compared with 1912:—

Roumanian Petroleum Exports.

[In metric tons.]

	Crude oil— 1912.	Crude oil— 1913.	Residuals— 1912.	Residuals— 1913.	Mineral oils. 1912.	Mineral oils. 1913.
Jan.	1,793	4,016	18,613	27,180	280	469
Feb.	2,441	4,072	14,944	25,503	275	429
Mar.	5,681	3,221	39,288	28,929	450	393
April.	1,204	5,324	8,321	38,881	481	93
May.	1,791	2,546	14,117	45,548	451	88
June.	4,553	925	39,525	27,862	492	2,222
July.	646	353	28,224	15,895	349	936
Aug.	1,102	1085	16,354	11,330	597	619
Sept.	1,709	986	30,748	19,803	514	1,140
Oct.	2,502	1,093	23,184	38,254	498	536
Nov.	2,796	669	30,465	35,124	490	2,334
Dec.	1,280	4,122	28,811	27,543	2,474	384
	27,498	28,622	283,594	341,912	7,351	9,543

	Illuminating oil and distillate. 1912.	1913.	Benzine, crude and refined. 1912.	1913.
Jan.	40,809	38,692	5,600	17,693
Feb.	22,161	42,252	14,762	21,379
March.	10,588	36,399	18,821	14,107
April.	14,100	32,988	6,092	9,193
May.	24,451	43,510	15,337	19,996
June.	26,412	36,588	6,785	17,307
July.	38,779	26,589	24,031	27,552
Aug.	37,262	23,311	36,270	9,065
Sept.	48,386	26,956	15,615	16,930
Oct.	26,796	38,227	8,823	32,084
Nov.	29,710	40,907	12,812	24,459
Dec.	34,109	32,203	8,869	27,517
	353,563	418,622	173,817	237,168

	Paraffine— 1912.	1913.	Grand total— 1912.	1913.
Jan.	121	34	67,216	88,084
Feb.	60	115	54,643	93,750
March.	87	14	65,915	83,093
April.	35	115	30,233	86,594
May.	33	51	56,180	111,648
June.	19	34	77,786	84,938
July.	34	.....	92,063	71,525
Aug.	15	7	91,600	45,317
Sept.	68	52	97,040	63,037
Oct.	71	40	61,874	110,234
Nov.	32	42	76,305	103,512
Dec.	25	76	75,568	91,845
	600	580	846,423	1,036,447

From the above figures it will be seen that the export of petroleum products from Roumania amounted to 1,036,447 tons, as compared with 846,423 tons for 1912, showing an increase of 190,024 tons, or 22.45 per cent. Considering the various sorts of products exported, we will see that there was an increase in the exports of each product, the most important being in benzine and residuals.

Residuals, Crude and Mineral Oils.—The quantity exported of these products amounted to 280,077 metric tons, as compared with 318,443 for the preceding year, showing an increase of 61,634 tons, or 19.35 per cent.

Illuminating Oil and Distillate.—The exports amounted to 418.622 tons, as compared with 353,563 for the year 1912, the increase being of 65,059 tons, or 18.40 per cent.

Benzine, Crude and Refined.—The exports amounted to 237.168 tons, as against 173,817 for the preceding year; the increase was of 63,351 tons, or 36.44 per cent.

Paraffine.—The export of this product showed a slight decline owing to the Balkan war; the quantity exported was of 580 tons, as against 600 tons for 1912.

The figures of the exports by countries of destination are given in the following:—

Exports of Roumanian Petroleum Products by Countries of Destination.

[In metric tons.]

Country.	Crude oil— 1912.	Crude oil— 1913.	Residuals— 1912.	Residuals— 1913.
Germany	903	1,060	13,045	17,690
England	.....	.....	111,900	112,739
Austro-Hungary	17,286	19,226	55,600	41,278
Belgium	1	150	1,973	2,584
Bulgaria	589	207	2,846	5,164
Egypt	....	.....	42,162	23,722
France	111	489	33,440	31,065
Greece	....	1	1	279
Holland	....	.....	125	2,935
Italy	....	....	6,854	66,478
Norway	6,712	3,231	1,234	502
Russia	....	26	1,147	9,011
Servia	58	58	1,381	2,876
Denmark	959	1,027	3,541	12,866
Turkey	899	141	1,163	4,467
Spain	....	.....	56	111
Tunisia	....	.....	7,053	8,076
Switzerland	....	13	.....	.....
Sweden	....	2,994	.....	.....
	27,498	28,623	283,590	341,903

Country.	Mineral oils— 1912.	Mineral oils— 1913.	Illuminating oil and distillate. 1912.	1913.
Germany	5,178	4,885	3,007	31,677
England	....	.....	98,465	89,971
Austro-Hungary	239	240	1,116	3,852
Belgium	....	562	9,775	19,396
Bulgaria	775	656	4,369	5,405
Egypt	....	.....	99,554	97,148
France	....	877	54,397	40,246
Greece	....	80	1,403	6,382
Holland	....	256	19,395	23,978
Italy	53	.....	17,291	34,709
Norway	....	.....	.....	2,319
Russia	....	.....	.....	.....
Servia	565	482	9	570
Denmark	....	.....	.....	.....
Turkey	521	1,349	49,628	56,673
Spain	....	128	.....	.....
Tunisia	....	.....	.....	474
Switzerland	....	.....	.....	.....
Sweden	....	.....	.....	6,096
	7,330	9,515	353,559	418,956

Country.	Benzine, crude and refined. 1912.	1913.	Paraffine 1912.	1913.
Germany	61,818	70,952	.....	.....
England	8,808	30,169	20	.....
Austro-Hungary	11,712	12,557	.....	32
Belgium	158	2,444	.....	.....
Bulgaria	1,765	1,956	33	53
Egypt	701	775	.....	.....
France	75,662	78,699	60	25
Greece	38	186	.....	.....
Holland	6,514	17,778	.....	.....
Italy	1,489	17,106	285	202
Norway	3,397	2,075	.....	.....
Russia	....	.....	63	77
Servia	597	257	3	.....
Denmark	....	.....	.....	.....
Turkey	1,100	1,950	178	102
Spain	....	.....	8	8
Tunisia	....	.....	.....	.....
Switzerland	....	661	.....	.....
Sweden	....	.....	.....	.....
	173,819	237,262	600	589

Country.	Total— 1912.	1913.
Germany	84,041	126,264
England	214,193	232,879
Austro-Hungary	86,013	77,185
Belgium	11,907	25,130
Bulgaria	10,257	13,141
Egypt	142,217	121,645
France	163,679	151,401
Greece	1,502	6,928
Holland	26,034	44,947
Italy	25,921	118,645
Norway	11,343	8,187
Russia	1,210	9,114
Servia	2,613	4,243
Denmark	4,500	13,893
Turkey	53,549	64,682
Spain	64	119
Tunisia	7,053	8,204
Switzerland	.....	1,148
Sweden	.....	9,090
	846,396	1,036,851

From this table it will be seen that the countries which have imported the largest quantities of Roumanian petroleum products during 1913 were:—England, France, Germany, Egypt, Italy and Austro-Hungary, the first three, and Italy showing an increase as compared with their imports during the preceding year. These six countries have imported during 1913 a total of 706,374 tons of Roumanian petroleum products or 68.13 per cent. of the total exports. Other countries which imported Roumanian petroleum products on a lower scale were by order of importance:—Turkey, Holland, Belgium, Denmark, Bulgaria, Norway and smaller quantities Tunisia, Greece, Sweden, Russia, Norway and Servia.

The greatest inconvenience that stands in the way of a great development of our exports of petroleum products is undoubtedly the lack of transportation facilities on the Roumanian railroads. The petroleum companies have made considerable investments in tank cars, and also purchased a few engines; but the organization of our railroad system is not at all adequate to the extraordinary development of the Roumanian petroleum industry.

To improve this intollerable situation, the government obtained from Parliament 400,000,000 francs for the railroad. Lately a good number of cars and locomotives have been ordered, but it will take more than six months before the first lot will be delivered, and during all this time the situation of our exporting companies is not at all to be envied. On the other hand, the termination of our big pipe line, Baicoi-Constantza, destined to ship crude and refined oil from the producing places to the sea, will naturally be delayed owing to the stoppage of work during the period of mobilization; and if everything goes right, it will probably be ready towards the middle of 1915. The petroleum industry, will therefore have to struggle for a good period of time before the hindrance that now stands in the way of their exports, will be removed.

The financial situation of the leading petroleum companies at the end of 1913 is given in the following, showing the nominal stock capital, the assets as per the latest balance sheet, the crude oil production, net profits and the dividends paid:—

Financial Situation of the Leading Petroleum Companies in Roumania at the End of 1913.

Company.	Year of registration.	Nominal capital, including debentures, francs.	Total assets as per latest sheet, francs.
Steau Romana	1896	120,000,000	83,520,956
Astra Romana	1910	60,000,000	67,370,547
Roumanian Consolidated Oilfields	1912	43,750,000	30,050,233
Orion	1910	20,100,000	17,894,802
British Oil & Gen. Securities Corp.	1910	15,000,000	5,120,265
Concordia	1907	12,500,000	16,081,920
Romano-Americana	1904	12,500,000	26,728,871
Chicura Oilfields of Roumania	1913	12,500,000	.....
United Crude Oil Prod. & Ref.	1911	11,562,500	.....
Naphtha	1906	10,000,000	3,842,148
Auorra	1898	8,727,970	8,679,665
Internationala	1899	7,916,666	6,616,915
Italo Romana	1905	7,500,000	8,653,309
Moreni Ghirdoveni	1908	7,500,000	8,187,268
Mataia Petrol. Trust, Ltd.	1911	6,250,000	.....
Traian Roum, Oil Co., Ltd.	1913	6,250,000	.....
Bacau Maatschaapij	1911	6,300,000	4,605,810
Aquila France Romana	1904	6,000,000	10,071,130
Credit Petrolifer	1905	6,000,000	8,332,694

Company.		Crude oil production for 1913, metric tons.	Net profits for the last business year.	Dividends paid in 1913, per cent.
Standard Petr. Exploitation Co., Ltd.	1913	5,750,000	.....	
Colombia	1909	5,000,000	15,481,889	
Vega	1905	5,000,000	10,677,377	
Anglo-Roum. Petr. Co.	1908	5,000,000	4,444,997	
Stavrop. Moreni Oil Prop.	1912	4,675,000	.....	
Alpha	1906	4,500,000	8,192,921	
Sphinx Petrol. Co., Ltd.	1913	3,750,000	.....	
Beciu (Roum.) Oil Fields, Ltd.	1910	3,750,000	1,915,827	
Standard Oil Refinery of Roum.	1912	3,500,000	2,855,170	
Policlori Oilfields of Roum.	1912	3,125,000	.....	
United Roum. Oilfields, Ltd.	1912	3,000,000	2,591,620	
Steaua Romana		402,355	5,880,579	10
Astra Romana		444,025	3,191,030	5
Roumanian Consolidated Oilfields		62,002	1,625,633	..
Orion		75,273	895,781	6
British Oil & Gen. Securities Corp.		198	.....	..
Concordia		83,126	697,283	5
Romano-Americana		333,231	2,111,135	*..
Chiciura Oilfields of Roumania		138	.....	..
United Crude Oil Prod. & Ref.		481	.....	..
Naphtha		23,006	109,601	5
Aurora		.....	†207,620	..
Internationala		41,449	83,406	..
Italo Romana		2,146	200,440	..
Moreni Ghirdoveni		.....	448,393	..
Maisels Petrol. Trust, Ltd.		7,306	.....	..
Traian Roum. Oil Co., Ltd.		22,623	.....	..
Bacau Maatschappij		1,001	.....	..
Aquila France Romana		17,700	643,950	6½
Credit Petrolifer		.....	611,054	10
Standard Petr. Exploitation Co., Ltd.		163	.....	..
Colombia		226,778	9,114,541	55
Vega		.....	500,097	10
Anglo-Roum. Petr. Co.		12,973	14,860	..
Stavrop. Moreni Oil Prop.		987	.....	..
Alpha		27,887	340,874	..
Sphinx Petrol. Co., Ltd.		129	.....	..
Beciu (Roum.) Oil Fields, Ltd.		1,556	1,106	..
Standard Oil Refinery of Roum.		.....	231,886	10
Policlori Oilfields of Roum.		.....	.....	..
United Roum. Oilfields, Ltd.		996	.....	..

*Carried forward.
† Loss.
‡4,500,000 francs refunded to shareholders.

The stock capital of all the petroleum companies at the end of 1913 was of 477,133,136 francs, while the capital paid up was of 360,125,725 francs. The total amount invested in the Roumanian petroleum industry can be valued at about 440,000,000 francs.

The production was in steady increase, the prices higher than ever, so that the year 1913 can be counted among the good ones, and everything justifies the expectation that 1914 will be a great deal more favorable.

PETROLEUM IN BRITAIN.

Last year was characterized by high prices for crude and some refined products also advanced. Thus, Russian refined petroleum increased by ½d. to 8½d. per gallon, American by ¼d. to 8½d., but Roumanian and Galician were unaltered at 8d. Although such was heard of the demand for fuel oil, the price was unchanged at 70s. per ton, although occasional lots for urgent requirement fetched more. Lubricating oils also were practically steady. Petrol or motor spirit advanced 2d. to 1s. 9d. per gallon, a second quality at 1s. 7d. being also introduced. The imports and exports will be found in the statistical record of British trade, included elsewhere in this issue.

Two general features outstand in the year. One, the public declation of the First Lord of the Admiralty, recognizing the importance of oil as a naval fuel, which marks the full official recognition of its utility and the systematising and control of adequate supplies; and two, the continual efforts towards finding a substitute for petrol (motor spirit). Benzole has found larger use in this connection and syndicates have been founded for promoting the manufacture and employment of products resulting from "cracking" heavier oils; incidentally, associations have also been formed to supply petrol on cooperative principles at rates below the Shell or Pratt figures. Lately, renewed consideration has been given to the possibilities of alcohol as a propulsion spirit and attention is given to the question of obtaining excise concessions in regard to denaturants and other matters with a view to the utilization of alcohol and benzine mixtures. On the whole, however, but little progress has been made towards the establishment of a petrol substitute of general use and plentiful supply.

Another feature of special interest is the remarkable development of the Pearson enterprise in Mexico; and a matter that attracted widespread attention to were the efforts of Lord Murray to secure exportation contracts in Columbia and Ecuador. Also particularly noteworthy has been the keenness of the Dutch Shell group to get into the California field. These matters have all, from time to time, been dealt with in the Reporters' "London Petroleum Notes," where also has been outlined another feature of the year, viz., the striking developments in the scope of oil-tank shipbuilding, particularly for the Mexican output. In many parts of the British Empire efforts are being made to find and exploit fresh petroleum fields but at present production is restricted to Burmah, Scotland, Assam, Trididad, Australia, Canada and that portion of Persia under British influence.

New York Drug Market

Though restricted to a considerable extent throughout the entire year by uncertainties regarding the outcome of tariff revision and by unabated uneasiness arising from fear of international complications, as a sequel to continued political upheavals in the Balkan States, as well as on the score of possible intervention by this country in Mexico, business in the drug markets of the United States reached moderate proportions in 1913 and, at the close of the twelvemonth, gave promise of a return to normal conditions and a probable expansion within the present year to a noteworthy volume.

Pre-eminent among 1913's developments tending toward material price changes was the signing in July of the long mooted cinchona bark price-maintenance agreement by Java bark growers and European quinine salts makers, which resulted in the establishment of a minimum price to be paid for the bark amounting to 5 Dutch cents per unit and of a basis of a shilling, or 25 American cents, and later 26 American cents, per ounce for the sulphate. Many other price changes of moment took an upward direction, chiefly because of a raising of the import duties for the commodities in question or because of a shortage in the 1913 crops of botanical medicinal products in Continental Europe, Asia and Africa, due to severe and long-continued droughts, which were also experienced in this country to the great detriment of the corn and cotton crops as well as to the yields of the relatively few botanical drugs grown in the United States. The continuance of the revolution in Mexico also brought about higher prices for such native products as sarsaparilla root and "American" or Mexican saffron flowers, but failed to affect vanilla beans and jalap root. On the other hand, numerous concessions, made by importers and other handlers of drug products and allied commodities, in the hope of augmenting the diminishing buying movement, resulted in a marking down of prices in several parts of the list which became almost as widespread as the upward movement in other quarters until late in the year, when a rallying tendency manifested itself, despite a slackening of purchasing operations due to the approach of inventory-taking time.

Most important among the interpretations of the new tariff law affecting the drug trade were those made shortly after the enactment of that law by the collector at the port of New York which were later declared incorrect by the United States Treasury Department, calling for assessment at import duties ranging from 20 per cent. to 25 per cent. ad valorem of articles which apparently had been provided for in the law as entitled to free entry or as subject to imposts much below the levels thus imposed. Chief among the goods assessed as 20 per cent., although hitherto admitted free of duty, were orris root, sandalwood, gums benzoin and olibanum, styrax, balsom Peru, rose leaves, lavender flowers, cassie and orange flowers, patchoull leaves, ambrette seed and sumbul root, which were deemed by the collector to be in the category of "aromatic substances used in the manufacture of perfumes or cosmetics" within the meaning of paragraph 49 of the law. It was contended by the importers that these articles should properly be classified as crude drugs entitled to free entry under the provisions of paragraph 477. Similarly, objection was raised by importers to the imposition of an import duty of 20 per cent. ad valorem upon pound coppers of terpeneless oils of lemon and orange, which were believed to be properly dutiable at 10 per cent. ad valorem, and upon sweet almond oil, otherwise provided for at a specific duty of 5 cents a pound, as well as upon the small sizes of foreign refined camphor, already dutiable at 5 cents a pound; upon Spanish saffron flowers in pound cans, already dutiable at 10 per cent.; and upon castor oil in small containers, already dutiable at 12 cents per gallon, on the ground that all these articles were classifiable as "chemical and medicinal compounds, combinations or similar articles, put up in individual packages of two and a half pounds or less, gross weight" within the meaning of the first part of paragraph 17 of the new tariff law. A contest was also raised over the assessment at 25 per cent. ad valorem of naphthalene balls and refined camphor hitherto admitted to the free list, on the ground that these goods are in the group of "chemicals, drugs, medicinal and similar substances imported in capsules, pills, tablets, and part of paragraph 17 of that law. In the second month of this year, the Treasury Department exempted all of the foregoing articles from the provisions of paragraphs 49 and 17, respectively, of the new tariff law.

A summary of the principal changes in the tariff affecting drugs and allied products, which have been made by the enactment of the Underwood-Simmons law, shows that the import duty for opium was doubled by being raised from $1.50 to $3 per pound in crude form and from $2 to $4 in refined form, while the duties for the derivatives, morphine and codeine, were advanced from $1.50 to $3 per ounce in both instances and that for cocaine was elevated from $1.50 to $2 an ounce. The import duty for cod liver oil, amounting to about 30 cents per gallon, or $4.50 per barrel, was removed while that for menthol was lowered from 25 per cent. ad valorem to 50 cents per pound. The duty for calomel was reduced from 35 per cent. to 20 per cent. and that for acetone from 25 per cent. to a cent per pound, while that for castile soap was dropped from a specific duty of 1¼ cents a pound to 10 per cent. Quinine was left on the free list. Caffein, hitherto dutiable at 25 per cent. ad valorem, was advanced to a duty of $1 per pound. Castor oil, formerly assessed at 35 cents per gallon, was at first scheduled for duty at 15 cents, but later at 12 cents per gallon. Ergot, hitherto on the free list, was booked for a specific duty of 10 cents per pound. Formaldehyde, formerly assessed at 25 per cent., was put down for a specific duty of a cent a pound. Tonka beans, formerly on the free list, were scheduled for a specific duty of 25 cents a pound and vanilla beans, also on the free list until the passage of the new law, were scheduled for a specific duty of 50 cents, but later were assessed at 30 cents per pound. All the leading acids were set down for reduced duties. In the essential oil group, the only essences scheduled to remain on the free list were birch tar, cajeput and croton oils. Lemon oil, formerly free of duty, was booked for assessment at 10 per cent. and orange oil, hitherto assessed at 25 per cent., was also billed for a duty of 10 per cent., while all the other essences were placed in the list as dutiable at 20 per cent. Short buchu leaves, already subject to a British Colonial government gathering tax of 2s. 6d. in the country of production, but which were on the free list so far as importing them into this country was concerned prior to the enactment of the new tariff law, were set down as dutiable here at a specific duty of 10 cents per pound. Since the turn of the year, the British colonial gathering tax on there leaves has been raised 6d. further to 3s. per pound. Among the roots, gentian was scheduled for an import duty of a quarter cent and licorice was also made dutiable at that rate, after having been scheduled for a duty of a half a cent per pound, while sarsaparilla was made dutiable at a cent per pound. Several of the seed and almost all the crude spices, notably mace and pimento, were also selected for specific duties.

The Underwood bill, providing for these revisions of import duties on the articles in Schedule A, was introduced into the House of Representatives at an extraordinary session of that lower house of Congress early in April, was amended in several important particulars and passed by that legislative body on May 8. In July, the Senate's Finance Committee incorporated in the Underwood bill, then known as the Simmons measure, a provision described as the bonded warehouse amendment which sought to make dutiable at the old import duties all goods placed in bond prior to the passage of the Underwood measure. This amendment, however, was eliminated from the Simmons bill as finally reported out by the Senate's committee early in September and the revised tariff law was then enacted by both houses of Congress and made effective early in October.

The full effect of the new duties and the elimination of some of the oil duties was not felt at first, as higher prices were not deemed advisable for goods with advanced duties when it was evident that it would require several weeks to exhaust the stocks of foreign goods brought here in anticipation of the higher imports, while, on the other hand, materially lower prices were not named for commodities whose duties were reduced or eliminated, because of the growing tendency on the part of foreign operators to mark up their quotations to an extent commensurate with such downward revisions as were noted in the American tariff. Numerous difficulties were at first experienced in taking advantage of the lowered duties and the elimination of some assessments, as the custom house authorities were not well acquainted with the law's provisions and, in many instances, the importers were compelled to pay the old tariffs for such goods when withdrawing them from bond, and then to file applications for rebates on such payments provided for in the new tariff law.

The first price revisions, due to tariff changes were confined to reductions in prices for menthol, needle antimony, castile soap, cyanide preparations, strychnine and its salts, tannic acid, acetone, sage leaves and chillies. Hard mercurials, which were also lowered materially, owed their decline as much to keen competition on the part of relatively new manufacturers as to a downward revision of the tariff. Immediately prior to the enactment of the new tariff law, however, the belief that its provisions would soon become effective inspired purchasing of foreign commodities which were to be subject to advanced assessments, in anticipation of the imposition of such higher duties, and encouraged the sale of articles whose duties were to be lowered or eliminated.

Business was contracted to some degree at the outset of 1913 by inventory taking and the prospect for tariff revision at the extraordinary session of Congress as well as by a scarcity of many botanical products whose stocks could not be replenished until the new crops were gathered in the late summer or early fall. Shipments of white arsenic and papain were also held up by the Mexican revolutionary activities while shipments of numerous botanicals from northeastern Europe were delayed early in the year by the closing of navigation in northern Germany and Russia by a blocking of the rivers of three countries by ice. Buying operations were also restricted by the unsettlement of business in Europe arising from fears of international complications resulting from the Turko-Balkan war and later Balkan upheavals and the accompanying suggestion of increased taxation of the subjects and citizens of the kingdoms, empires and republics of the Continent. Disastrous floods, cyclones and tornadoes, which swept over the central West in March, caused serious interruption of telephone, telegraphic and mail communication as well as heavy property losses in that section of the country and thereby handicapped business in drugs as well as in other lines throughout these regions for almost a month. There was also a noteworthy delay at the beginning of the year in shipments of opium, canary seed and gum traganta from Turkey, due to an uprising and revolt of the Turkish war party.

From the very outset of 1913, the drug trade made extensive use of the parcel post facilities and, among other subjects, became greatly interested in the New York state weights and measures law, which became effective in part June 1, 1913 but did not become operative in its entirety until February 1, 1914, as well as in the New York City wood alcohol labeling bill, which was passed by that municipality's Board of Aldermen in June but was vetoed by Mayor Gaynor shortly after its passage. The fire in the cargo of the Steamship Imperator, which occurred at the ship's pier in Hoboken toward the end of August, caused only slight damage to the small quantity of drugs and medicinal preparations contained therein. Absorbing interest was shown by all branches of the trade in the signing of the cinchona bark-maintenance agreement by the Java bark planters and European quinine salts manufacturers, which occurred on July 15, after several years of preliminary negotiations and an entire year of proposals and counterproposals between these interests. The compact, or "convention", which was then agreed upon by the Java bark growers and sulphate makers of Europe, established a minimum price of five Dutch cents per bark unit and more than worked out a basis of a shilling, or 25 American cents, per ounce for the salts. The agreement, it was stipulated, was to be of three years' duration and called for an even division of extra profits on the sale of the salts between the bark growers and quinine markers, in the event that the sulphate commands a figure higher than a specified level.

The most interesting price movements were noted in the markets for opium, quinine, menthol and the Messina essences. After manifesting great strength at the beginning of the year, opium sold off heavily under pressure exerted by the banks in Turkey against the operators in the primary centers whose loans were called by the financial institutions which had previously made extensive advances to them. Toward the end of March, it rallied, however, on reports of heavy damage to the fall-planted poppy crop by late frosts and snow in Asia Minor and Macedonia and a sharp uplift, which carried prices almost to the levels reached at the beginning of the year, continued until the middle of the twelvemonth, as a result of extensive buying based upon the expectation that the import duty would be doubled. From mid-year until the last month of 1913, prices declined as it became evident that the yield would be exceptionally large, reaching probably 8,000 cases and possibly 9,000 cases, despite reports of damage through a renewed invasion of some of the producing territories by the Bulgarian and other Balkan state forces. Quinine's sensational soaring from a 19½ cent to a 26 cent level was due almost entirely to the prospect for, the later materialization and unswerving observance of the bark price-maintenance agreement by bark growers and salts makers abroad. Menthol was marked up sharply early in the year on a scarcity of spot stocks and reports that the new crop in Japan would reveal a curtailment of fully 30 per cent. Later in the year, however, it became apparent that the yield would be abnormally large and, under the influence thus created and the prospective lowering of the import duty for the

article, which materialized later in the year, prices were marked down heavily, to begin a recovery from the lower figures then reached only toward the end of the year.

Lemon and orange oils were advanced sharply early in the year, following the discovery that the yield of both had been unusually light, which forced many shorts to cover their commitments at rising prices. Quotations for lemon oil at length reached levels fully $1 above those which prevailed immediately after the Messina earthquake at the close of 1908. Citric acid likewise had a sharp uplift early in the year, due to the greatly increased cost of lemons and limes in the primary markets and a serious curtailment of the citrous crops in California and Florida but, with a seasonable falling off in the demand for this acid, prices were restored to more nearly normal levels toward the end of the year.

OPIUM.

Despite the handicaps imposed upon production by the depredations of invading armies in Balkan war and a curtailment of Turkish labor in the poppy fields and, notwithstanding the exceptional frosts and cold weather which prevailed until the early spring of last year, the 1913 yield of gum opium reached much larger proportions than that for the previous year, though slightly smaller than that for 1911. An almost uninterrupted recession in prices therefore occurred in all the consuming centers as well as in the Turkish markets, the drop in quotations in the New York market, being from $6.60 to $5.60 per pound for druggists' quality gum in case lots, until a moderate recovery was begun at the close of the year, in partial recognition of a doubling of the import duty. At the outset of the year, the 1913 crop was estimated at only 5,000 cases, or 1,500 cases less than that for 1912 and less than half of that for 1911. Within a few months, however, the yield was figured at much larger proportions and, at the outset of the summer, estimates thereon ranged from 6,000 to 8,000 cases. At the beginning of the fall, the general estimates on the production were in the neighborhood of 8,000 to 9,000 cases and final returns showed a yield of about 8,500 cases while the outlook favored the raising and gathering of a similar crop this year. The only serious damage wrought by invading forces and frosts in the 1913 crop were noted in Macedonia and Salonika and the losses even in these producing regions were relatively light.

The prospect for a doubling of the American import duty on crude opium from $1, by an advance in the tariff rate from $1.50 to $3 per pound, failed to halt the downward movement which had already carried prices in 1912 from $8.50 to $6 and, although the prices named at the outset of 1913 were in the vicinity of $6.60 a drop from that level to $6 and then to $5.90 occurred before the end of February, under keen competition, offered—on the outlook for a good-sized yield by out-of-town as well as by New York houses. Calling of loans, made to the operators in Constantinople, Smyrna and Salonika by the Turkish banks, hastened the downward movement still further and the prevailing figure asked for druggists' quality gum fell to $5.80 before the end of March. From that level, however, a rally to $6.00 occurred on reports of damage to the 1913 crop, resulting from invasion by hostile forces in Macedonia and by frosts in Salonika. It was in May that a price of $6.40 was again reached but, following the dissemination of estimates on the total yield considerably higher than any so far reported, prices asked for the gum were lowered again, this time to $6 by the end of June and to $5.85 at the beginning of July. From that figure, the quotation here was reduced further in July and August, until $5.65 was reached and, after advancing to $5.90 in September and dropping back to $5.75 in October, the average prices of the leading importers were lowered to $5.60 in November. Then occurred the moderate recovery, already referred to, which carried the quotation back to $6 at the end of the year and which has since raised the asking figures of most importers to $6.40.

The powdered and granulated grades were likewise marked down in 1913 from $7.75 for the first mentioned description at the beginning of the year to $7.30 at the end of March and then from the same initial figure at the outset of the twelvemonth to $7.35 for the latter variety within the same period. From these relatively low levels, however, there were moderate recoveries in both instances which carried their quotations upward to $8.15 for the powdered grade and to $8.25 for the granular grade at the beginning of June. Thereafter a recession, intensified by keen competition, lowered prices for the powdered description to $7.20 and for the granular variety to $7.25 about the middle of Septmeber and a subsequent partial recovery brought them back to $7.45 for the powdered grade and to $7.55 for the granular grade. Legislation in numerous states, restricting the sale of opium and all derivates thereof and the prospect for a speedy enactment of the Harrison, or national anti-narcotic bill, seeking to regulate all traffic in this narcotic and derivatives, as well as in other similar drugs, which was made even more probable by the pasage of this measure by the House of Representatives, militated strongly toward a curtailment of business in this commodity in all its forms throughout 1913 so that at the close of the year, consumers bought only in hand-to-muth fashin.

The following table shows the high and low prices for the gum in each of the twelve months of last year:—

	High.	Low.		High.	Low.
Jan....	$6.00	$6.20	Aug.....	$5.75	$5.65
Feb....	6.20	5.90	Sept.....	5.90	5.75
March...	6.15	5.80	Oct.....	5.80	5.75
April....	6.25	6.15	Nov.....	5.75	5.60
May.....	6.40	6.40	Dec.....	6.00	5.80
June....	6.25	6.00	Year.....	6.60	5.60
July.....	5.85	5.65			

We append the following table showing the crops and the high and low prices for cases on spot since 1870.—

Year.	Crop, cases.	Prices—High.	Prices—Low.
1913	8,500	*$6.60	$5.60
1912	6,500	8.50	6.00
1911	10,500	8.50	4.70
1910	4,800	6.00	4.80
1909	4,800	6.00	4.00
1908	4,650	5.75	4.05
1907	3,000	7.00	3.45
1906	7,500	3.50	2.72½
1905	5,700	3.50	2.72½
1904	11,200	2.95	2.62½
1903	3,200	3.50	2.70
1902	10,000	3.05	2.70
1901	5,600	3.45	3.00
1900	8,200	3.45	3.00
1899	6,400	3.37½	2.80
1898	3,000	3.75	2.70
1897	7,000	*2.85	1.95
1896	3,600	2.40	1.90
1895	7,500	2.30	1.60
1894	4,500	3.25	1.85
1893	2,845	3.15	1.77½
1892	7,500	1.80	1.50
1891	7,400	2.25	1.75
1890	5,300	3.85	2.00
1889	5,500	3.40	2.82½
1888	8,700	3.87½	2.65
1887	7,800	4.00	3.25
1886	7,500	3.25	2.80
1885	7,000	5.00	3.20
1884	5,000	4.10	3.50
1883	6,500	4.12½	3.50
1882	5,500	4.50	3.87½
1881	10,000	6.25	3.90
1880	2,000	7.75	4.87½
1879	4,000	5.25	4.35
1878	5,500	4.70	4.25
1877	9,500	6.70	4.75
1876	3,280	6.00	4.75
1875	6,489	7.75	5.00
1874	2,300	9.00	5.00
1873	3,200	7.90	5.95
1872	4,500	7.90	6.10
1871	7,963	6.00	4.90
1870	4,273	9.40	5.25

An import duty of $1 per pound became operative in July, 1897 and remained in force until August, 1909, when it was increased by 50 cents. In October, 1913, the import duty was doubled, making the existing tariff $3 per pound.

Morphine.

No reflection of the recession in opium prices was noted in the quotations for morphine within 1913, asking figures of the manufacturers, both foreign and domestic, remaining on a basis of $4.20 per ounce in 50-ounce lots, in one delivery or in equal monthly shipments within 60 days, throughout the first eleven months of the year and advancing to a $4.45 basis and then to a $4.70 basis during the last month of the period, when the doubled import duty, which had been raised from $1.50 to $3 an ounce, was recognized in an uplift of prices. Only a moderate business was reported throughout the year.

Codeine.

The heavy drop in opium prices was recognized in the quotations for codeine by all manufacturers shortly after the outset of 1913 in a reduction of their prices from $5.65 to $5.25 per ounce for the alkaloid, muriate and nitrate forms, in 10-ounce lots in one delivery, which occurred about the middle of March. The latter basis was maintained until the outset of December, when prices were raised to $5.50 and, before the end of the month, quotations were marked up again, this time to $5.75.

Quinine.

A sensational advance in prices asked for the salts was recorded in 1913 as a sequel to signing and strict observance of a cinchona bark price-maintenance agreement by the Java bark growers and European salts makers. This agreement, which had been contemplated for several years and which had been under negotiation for eighteen months, was finally signed on July 15 in Amsterdam but, even before this "convention" was thus made effective, both German and American manufacturers had raised their prices from the salts from 19½c. per ounce to 21½c. per ounce in 100-ounce tins, in the last week of January, in view of the probability that such an agreement would be arrived at and adhered to by the producers of the bark and salts and also in view of a contemplated and partially carried out curtailment of bark shipments from Java to Europe, which ceased however, just before the bark price-maintenance agreement was put into force. Immediately upon the signing of the bark price-maintenance agreement, in which the American salts makers were unable to become parties, because of the obvious restrictions of the Sherman anti-trust and "conspiracy in restraint of trade" law in this country, prices for the salts were marked up from 21½c. to a 23c. basis, the date of this uplift being July 26. From this level there was another advance to 26c., in the second week of December, and this basis was maintained throughout the remainder of 1913 and has since been held. Outside lots of German, Amsterdam and Java salts, which usually are available in the New York market at prices slightly below those asked for the output of the manufacturers on contracts, were advanced proportionately during the year and, at the close of 1913, were almost on a level with those asked by the makers, with little available in second hands, while prompt, nearby and forward shipments of the Java salts were held at a fraction higher than the quotation named for the current output of the manufacturers. Even at the high levels thus reached, few manufacturers were desirous of selling more than relatively small amounts of their output as the year drew to a close, as they were generally of the opinion that still higher figures would soon have to be named.

The bark price-maintenance agreement, signed by the leading Java bark growers and European salts makers on July 15, which had long been needed by the trade, in order to fix a reasonable minimum figure at which this commodity might be sold, provided for the establishment and strict observance of a minimum price of 5 Dutch cents per bark unit, which necessitated the fixing of a low limit figure for the sulphate at an equivalent of an English shilling or 25 American cents per ounce. The agreement was to cover a period of three years and fixed the quantity of the bark to be produced and taken by salts makers annually at 44,000 cases, the equivalent of about 1,760,000 ounces of sulphate. The agreement stipulated that the apportionment among the quinine makers was to be regulated in accordance with their customary requirements and, as the agreement recognized only a minimum price basis, a provision was mae for any advantages which might result from a market which would justify a better return to the growers, in which event the growers and the quinine makers are to share in the higher prices obtained.

The agreement did not attempt to regulate bark shipments, and the price maintenance feature of this "convention" has thus far failed to work out an automatic control of these exports. All existing stocks of the so-called "manufacturing" bark, however, were withdrawn by the growers, in accordance with the terms of the agreement, until the Java bark situation should be strengthened sufficiently to permit of a resumption of liberal offers. Aside from supplying the natives and other residents of the island of Java and a few other colonies, the Dutch government promised not to compete with the European salts makers in the manufacture and sale of the sulphate, but it erected a new quinine factory in Java, for the production of about 12,000 kilos of sulphate a year, intended for Java consumption, and also continued operations in its Bendoeng factory to supply the wants of the Java trade.

Conferences held for the purpose of reaching a bark price-maintenance agreement were begun in Batavia by the Java planters and European salts makers early in July, 1912, and proposals almost exactly similar to those, which were later accepted by all parties, were then submitted by the growers; but it was not until the close of 1912 that the quinine makers appeared willing to accept these terms. An obstacle to the signing of the agreement then developed in the form of a problem as to what regulation should be made with regard to the marketing of second-hand lots of the sulphate. Proposals along this line and several amendments to the original terms of the agreement were thereafter made at conferences between the bark planters and salts makers, held in Dusseldorf and Amsterdam, and, at the outset of 1913 the European quinine manufacturers submitted counter proposals and agreed to allow the bark growers until July 15 in which to accept their suggested amendments and to sign the agreement. A few days before the termination of this period, however, a small minority of the Java planters, constituting about one-eighth of their number, became recalcitrant and withheld their consent to the terms because of the omission of a provision that a new process for the making of the salts from fresh bark, for which a patent was pending, should be employed in the second of the Dutch government's factories. This element was soon pacified, however, and the three years' bark price-maintenance agreement was then put through, calling for a minimum of 5 Dutch cents per unit of bark and for the taking by the salts makers of a minimum quantity of the bark each year as well as for a half share in exceptional profits on the sulphate for the growers as well as for the sulphate makers.

At the Amsterdam bark auctions in 1913 offerings consisted of 15,757 packages at the January sale, 16,487 packages at the February sale, 13,818 packages at the April auction, 16,818 packages at the May sale, 12,683 packages at the June auction, and were intended to include 13,279 packages at the July sale. No auction was held in July, however, as the bark price-maintenance agreement was signed immediately before the date fixed for this contemplated sale and all offerings were therefore withdrawn forthwith and the sale omitted. A all manufacturing grades of the bark were withheld from the subsequent auctions, the offerings at these sales included only 1,600 packages at the August sale, 1,901 packages at the October auction, 1,903 packages at the November sale and only 1,861 packages at the December auction in that center. At the January (1914) auction in Amsterdam offerings were likewise limited to 1,969 packages. The average prices realized for the bark at the 1913 Amsterdam auctions were 4.25 Dutch cents per unit at the January sale, 4.31 Dutch cents at the February auction, 4.30 Dutch cents at the April sale, 4.21 Dutch cents at the May auction, 4.14 Dutch cents at the June sale, and 5 Dutch cents at the August and October sales, in accordance with the terms of the price-maintenance agreement. The average prices at the November and December auctions were also on a basis of 5 Dutch cents per unit; but at the January (1914) sale an average figure of 6.20 Dutch cents was obtained.

Shipments of cinchona bark from Java to Europe during 1913 totaled 18,706,000 Dutch pounds, making such exports average 1,558,085 Dutch pounds per month. These shipments were made as follows:—In January, 1,308,000 Dutch pounds; in February, 1,564,000 Dutch pounds; in March, 962,000 Dutch pounds; in April, 752,000 Dutch pounds; in May, 976,000 Dutch pounds; in June, 1,898,000 Dutch pounds; in July, 1,732,000 Dutch pounds; in August, 1,910,000 Dutch pounds; in September, 2,268,000 Dutch pounds; in October, 2,134,000 Dutch pounds; in November, 2,070,000 Dutch pounds, and in December, 1,132,000 Dutch pounds.

At the Amsterdam salts auctions in 1913, in each of which the offerings consisted of 50,000 ounces of British pharmacopoeial quality salts, the average prices obtained were:—16.30 florins per kilo at the first of the January sales; 18.50 florins per kilo at both of the August auctions and at the first of the September sales; 19.505 florins at the second of the September auctions, and 18.50 florins at the first of the November auctions. Offerings were withdrawn by the holders, however, at the second of the January auctions, because of their refusal to sell below 18 florins per kilo and at all the February, March, April, May and June auctions as well as at the first of the July sales, because of the failure of prospective buyers to bid 17.50 florins and the refusal of the holders to part with their offerings for less. At the second of the July, October and November auctions, offerings were withdrawn, because of the unwillingness of holders to sell below 18.50 florins per kilo, and, at the first of the October auctions, offerings were withdrawn, because of the refusal of holders to sell below 18.75 florins, while at both the December sales offerings were withdrawn because of the unwillingness of holders to sell below 20¾ florins per kilo, the equivalent of 26 cents per ounce.

The following summary records high and low prices for bulk quinine as maintained by makers during the last twenty years:—

	High.	Low.		High.	Low.
1913	26	19½	1903	28	23
1912	19½	14	1902	28	20
1911	14	14	1901	34	27
1910	14	14	1900	37	29
1909	15	14	1899	40	21
1908	16	15	1898	25	18
1907	22	16	1897	30	15
1906	19	14½	1896	27	17½
1905	23	19	1895	28	25
1904	27	21	1894	27½	25½

MISCELLANEOUS.

Alcohol.

Keen competition among domestic manfucturers of ethyl, methyl and denatured spirits brought about numerous reductions in prices within 1913. Opening the year with 188 proof ethyl alcohol at $2.52@2.54, the market for this grade was marked down two cents in the last week of January, one cent further early in March, a cent more about the middle of that montn and a cent further toward the end of that same month, as well as a cent more early in May, bringing the quotation for this grade down to $2.46@2.48. The 190 proof U. S. P. ethyl grade was similarly reduced from $2.54@2.56 to $2.47@2.49 within the same period. At the end of August, however, the 188 proof ethyl description was advanced two cents to $2.48@2.50, while the 190 proof ethyl variety was similarly marked up to $2.49@2.51 and, a week later, to $2.51@2.53. Early in October, however, the general realization that they would still be protected agaist ruinous foreign competition by the new tariff law caused the domestic distillers to raise their prices to a basis of $2.50@2.52 for the 188 proof ethyl grade, and to $2.53@2.55 for the 190 proof ethyl description. Late in October, however, they again reduced their prices, under keen competition among themselves, to $2.48@2.50 for the 188 proof ethyl grade and to $2.51@2.53 for the 190 ethyl variety. Considerable dissatisfaction was expressed by the manufacturers of the ethyl grades over the provision of the new tariff, embodied in paragraphs 253, 3-4; providing for a charge of 25 cents to be made for each stamp required by law to be affixed to packages of all distilled spirits filled on the premises of rectifiers or wholesale liquor dealers. Payment of this new charge, which became effective January 1, 1914, is

now being made by each rectifier or wholesale liquor dealer on whose packages the stamps are used, the stamps being issued and accounted for by the collector in such manner as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, has, by regulation, prescribed. The methyl grades were likewise marked down, after opening the year at 50@52c. for the 95 per cent. grade, and at 56@57c. for the 97 per cent. description, to 49@51c. for the former, and to 55@57c. for the latter, early in March, and to 54@56c. later in that month. In the second week of July increasing competition among domestic distillers brought about a further reduction to 47@49c. for the 95 per cent. grade and to 52@54c. for the 97 per cent. description and, at the end of that month, these grades were being offered as low as 45@47c. and 50@52c., respectively. A slight recovery from these levels occurred, however, about the middle of September, when the 95 per cent. variety was advanced to 46@47c., and 97 per cent. description to 51@53c., and these figures prevailed throughout the remainder of the year. The denatured grades were also reduced heavily, opening the year at 40@42c. for the 180 proof grade and at 41@42c. for the 188 proof variety, and being lowered three cents at the outset of March to 37@39c. and to 38@40c., respectively. Early in July these grades were marked down a cent further to 36@39c. and to 37@40c., respectively, and about the middle of August they were offered a cent lower at 35@38c. and at 36@39c., respectively, while, late in October, they were marked down further to 35@38c. for the 180 proof grade and to 34@37c. for the 188 proof description, the last-mentioned figures continuing in force until the end of the twelvemonth.

Borax.

In view of the increased cost of labor leading manufacturers of this commodity raised their prices just before the close of 1913 to the extent of a quarter cent a pound in all forms except the crystals, in bags, which they continued to offer for 1914 deliveries in carload lots at the 1913 price of 3¾c. An innovation in packages, which took the form of paper-lined sacks, was then adopted by the manufacturers and, in carload lots in such new containers for 1914 deliveries, these makers advanced the prices for this article in powdered form from 3¾c. to 4c., while in carload lots in barrels, they raised their prices from 4c. to 4¼c. Ton prices were fixed a quarter cent above those asked for carload lots.

Cocoa Butter.

Though subject to an early moderate recession and a consequent uplift, which carried prices to levels considerably above those noted at the outset of the year, this commodity closed 1913 at substantially the same figures as were asked for it at the beginning of the twelvemonth, or in the second month thereof. Opening prices were 31@33c. in bulk and 36@39c. for wrapped fingers in 12-pound boxes, but, in sympathy with a sharp drop in the prices obtained at the first of the 1913 auctions in Amsterdam, domestic handlers of this article lowered their prices to 31½@33c. for the goods in bulk, and to 35@39c. for the wrapped fingers, according to brand. From these relatively low levels, however, there was a steady uplift, in recognition of a noteworthy advance in prices in Amsterdam, to 34@35c. in bulk, and to 38@40c. in the form of wrapped fingers, by the middle of March, and the market continued at these levels until the outset of May, when a recession occurred which carried prices off to 33@35c. in bulk, and to 37@40c. in the form of wrapped fingers. At the close of July the bulk prices were raised to 34@36c., reflecting another material upward movement at the Amsterdam auction for that month, but the wrapped fingers in boxes continued to be quoted at 37@39c. until August, when quotations for both bulk and wrapped finger forms were lowered to 32@34c. for the former, and to 36@39c. for the latter. There was no further change in the price asked for wrapped fingers, but those named for the bulk article were marked up to 33@35c. at the beginning of October and continued at that level throughout the remainder of the year. At the Amsterdam auctions, in 1913, the prices realized for the offerings ranged from an average price of 73½ Dutch cents per half kilo for one well-known brand, to 95½ Dutch cents per half kilo, the first such sale bringing only the first-mentioned figure, and the last 80 Dutch cents per half kilo.

Results at the monthly Amsterdam auctions during the last few years on the basis of Van Houten's follow:—

COCOA BUTTER.
(Dutch cents per ½ kilo.)

	1910.	1911.	1912.	1913.
January	60	80	72½	73½
February	62	84	80½	76
March	60	85	85	77½
April	61	84	74	77
May	60	82	73	74
June	60	105	78	76½
July	61	103	86½	78½
August	62	102	82	78½
September	66	102	74	95½
October	67	96½	75	79½
November	75	80	72½	83
December	85	73	78	80

Codliver Oil.

As the 1913 yield of this medicinal oil was only about two-thirds the size of that obtained in the previous year, prices asked for the standard steam-refined brands were marked up sharply from the levels prevailing in 1912, despite the expected and finally realized elimination of the American import duty of 30 cents per gallon, equivalent to about $4.50 per barrel. The total catch in Norway reached only 76,000,000 fish, as compared with 99,000,000 fish for 1912 and, as the livers proved exceptionally lean, the oil yield therefrom was relatively small. The oil yield for all Norway amounted to only 41,500 barrels, as compared with 65,690 barrels for 1912. Although exports from Norway amounted to only 27,000 barrels and therefore left a moderate surplus unsold at the close of the year, prices were not lowered materially, even toward the close of the year when the existence of the comparatively large "carry-over" became known. The new fishing returns, those recorded so far in 1914, have also proved disappointing in the number of fish caught, but encouraging on the score of their oil yield, which is proportionately greater than that for 1913, because of the better quality of the livers, which are much fatter and more productive of oil than those taken from the 1912 fish. The Lofoten district's yield last year was exceptionally light, amounting to only 6,000 hectoliters, the smallest since 1904, when it consisted of only 3,300 hectoliters, and the Finmarken district's yield was also meager, reaching only 22,700 hectoliters. Prices at which the oil was offered by domestic importers range from $21.60 to $26 for several of the brands, while from $24 to $34 were paid for the most sought-for brands. Opening at $21.50, prices for the ordinary brands were marked up in February to $22.50 and then to $23@24. In March the upward movement carried prices from the last-mentioned figure to $28, but from that level there was a recession to $25 at the close of April, and to $24.50 at the end of May. In June the recession, begun in April, brought prices down to a $23.50 basis, but there ensued a partial recovery which carried the quotation to $24 before the end of July, to $25 at the close of August and to $26 in September. Then followed a recession to $25, to $24.50 and finally to $24 in October, and another drop to $23 at the close of the year. Since the beginning of 1914 the decline has progressed further, until the present market price is about $21.

As a basis for comparison with the results of the ten previous years we append the following table, showing the production of Lofoten and total Norway oil, the total catch of fish in millions and the ruling basis for shipment of medicinal oil at the close of the season:—

	Lofoten, final hectoliters.	Total Norway, final hectoliters.	Fish, millions, total.	Quotations, f. o. Norway.
1913	6,000	48,300	76	$24.00
1912	12,000	76,200	99	14.00
1911	7,900	43,300	64½	26.00
1910	13,500	41,000	55¾	25.00
1909	20,000	50,400	56¼	15.00
1908	20,100	59,100	48½	13.50
1907	20,400	46,400	47¾	17.50
1906	17,000	42,900	46¾	16.00
1905	11,500	41,900	45	16.00
1904	3,300	17,500	50	40.00
1903	600	2,800	48	120.00

We also append as of further probable interest the following summary of high and low quotations during the last three years:—

	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	32.50	32.50	32.00	31.50	21.50	21.50
Feb.	40.00	35.00	31.25	25.00	24.00	23.50
Mar.	42.00	40.00	21.50	21.50	28.00	24.00
Apr.	42.00	39.00	21.00	20.00	28.00	25.00
May	39.00	36.00	21.00	20.00	25.00	24.50
June	36.00	33.00	21.00	20.00	24.50	23.50
July	33.00	32.00	21.00	20.00	24.00	23.50
Aug.	34.50	33.00	21.00	20.00	25.00	24.00
Sept.	35.00	34.00	21.00	20.00	26.00	25.00
Oct.	35.00	35.00	22.00	22.00	25.00	24.00
Nov.	35.00	34.00	22.00	21.50	24.00	24.00
Dec.	34.00	32.00	21.50	21.50	24.00	23.00
Year	42.00	32.00	32.00	20.00	28.00	21.50

Ergot.

Increasing competition among domestic importers and other handlers of both Russian and Spanish grades in 1913, more than offset the efforts of the operators in the primary markets to hold prices at relatively high levels, in view of the high interest charges asked by German and Spanish banks for accommodations, and, after a brief uplift, at the outset of the year, prices were marked down sharply to figures about one-half those asked at the beginning of the twelvemonth. The downward movement, which was almost uninterrupted after the middle of March, was accelerated later in the year by the gathering of unexpectedly large crops in Russia, Germany and Spain. From $1.20, the quotation for the Russian variety was marked up to $1.30, at the close of January, and then to $1.40, before the end of February. A recession from this level began about the middle of March, however, and from that figure the recession carried prices off to 68c. at the close of the year. Similarly, prices for the Spanish description, after having opened at $1.60, were marked up to $1.65, but, from that figure, the quotation was lowered steadily to $1.40, and despite a subsequent recovery to $1.55, holders lowered their prices to $1.45, then to $1.35, and to $1.30, $1.25 and $1 by the close of November. At the end of the year they had reduced their prices to 95c. for this grade.

Fusel Oil.

Keen competition among domestic manufacturers, due to a constantly increasing use of compounds in which cheapening agents had been introduced, brought about a heavy reduction in prices asked for the crude as well as for the refined oil and amyl acetate within 1913, the marking down of quotations being almost continuous from the beginning to the end of the year. From $40@42 per 100 kilos, f. o. b., countries of production, the foreign makers of the oil lowered their prices to $34@36 per 100 kilos within the twelemonth, while domestic manufacturers dropped their prices from $2.30 to $1.25, f. o. b. their distilleries, according to amylic alcohol content. Similarly, domestic manufacturers of the refined oil rdeuced their quotations from $2.65 to $1.80 for this commodity and their asking figures for amyl acetate from $2.60 to $1.75.

Glucose and Grape Sugar.

An almost uninterrupted upward movement occurred in the domestic markets for both glucose and grape sugar during the first eight months of 1913, but a subsequent recession carried prices back materially, though not to levels as low as those recorded at the outset of the year. Thus, glucose, or corn syrup, opened with the leading manufacturers asking $1.79 for the 42 degrees mixing variety and grape sugar, or corn sugar, at $1.88. From these levels an ascent to $2.41 and $2.35, respectively, was registered at the close of August. In the following month, however, glucose prices were lowered to $2.31 and, in the succeeding quarter, they were marked down to $2.01 while, in September, also, corn sugar prices were lowered to $2.25 and in the following three months they were dropped to $1.95.

Glycerine.

Though interrupted during the warm weather months, when the demand fell to meagre proportions, as usual at this season, an upward movement of considerable magnitude occurred in the markets for the distilled grades of this commodity in 1913, as a consequence of a greatly increased employment of both the dynamite and chemically pure descriptions and in sympathy with an equally sharp uplift in the crude grades—soap lye and saponification. The crude grades, in turn, advanced in consequence of a noteworthy falling off in production abroad as well as at home, resulting from the failure of many soap-making industries to yield as large a percentage of these by-products as formerly, because of a change in the raw material used in the processes of manufacture. In the dynamite grade, the quotations made by domestic distillers were marked up, after a preliminary dip from 18¾c. to 17¼c. to 20c., by the close of March. From this level, however, there was another recession, which carried prices down to 18¼c. at the end of June, but, following this decline, there was a steady advance in the last half of the year which brought the average price back to 20c. and caused the market for this grade to close at 19½c. In the C. P. grade the prices asked for this article in drums and barrels were raised from 18¾c., the level reached at the beginning of the year, to 20c., before the end of March, and, although there was a reduction from that figure to 19¼c., about the middle of June, there followed an uplift from that level to 21c., early in October, and the market for this description closed at 20¼c. In cans, prices asked for the C. P. grade throughout the year were generally a cent above those named for this variety in drums and barrels. A reduction in the import duty for refined glycerine from 3c. to 2c. was without appreciable influence upon prices for the distilled grades.

The following summary may be of interest in showing the prevailing range of high and low quotations for C. P. glycerine during the last four years:—

GLYCERINE, C. P.

	1910. H.	1910. L.	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	19¾	19¼	25½	25	17¾	17¼	18¾	18¾
Feb.	20	19¾	25	25	17¼	16¼	18¾	18¾
March.	20	20	25	24¾	16	16	20	18¾
April	19¾	19½	24¾	24	16½	18½	20	20
May	20	19½	24	23½	19	19	20	19¾
June	20½	20	23	23	19	19	19¾	19½
July	20½	20½	23	22½	20	20	19¼	19¼
Aug.	23	20½	22½	21¼	20	20	19½	19½
Sept.	24	23½	21¼	21	20	20	20¾	19½
Oct.	25	24	21	20	20	19¾	21	20¾
Nov.	26	25½	20	18½	19½	19½	20¾	20¾
Dec.	26	25½	18	17½	19	18¾	20¾	20¼
Year	26	19¼	25½	17½	20	16	21	18¾

Exports of glycerine from Germany to the United States for the month of October and for the ten months ending October 31, 1913, with comparisons with those for the corresponding period in 1912, follow:—

October.	Pounds.
1913	2,678,736
1912	2,305,378
Ten Months ending October.	Pounds.
1913	31,873,228
1912	23,851,627
1911	32,267,920

Haarlem Oil.

The increased cost of glass bottles, in which this commodity is prepared for market abroad, resulting from a concerted raising of the prices asked for these containers by the leading bottle makers of Europe, was reflected in a sharp uplift of quotations for the oil in 1913, which carried prices upward here from $1.65 to $2 at the beginning of September, and, although some shading of this figure was indulged in toward the end of October and throughout November, the quotations for one well known brand closed the year at $1.90 and other brands were generally held at levels close to that figure.

Lycopodium.

Increasing competition among manufacturers brought about a reduction in prices for this commodity in 1913 which carried the prices generally asked for it down from 42c. to 38c. for a majority of brands and those for one well known brand from 43c. to 40.

Manna.

More liberal supplies and a diminishing demand were chiefly responsible for a drop in prices for this article, which brought quotations for the large flake description down from 92½c. to 85c. and those for the small flake variety from 62½c. to 55c.

Menthol.

With few interruptions, in the way of temporary recoveries from the lowest figures named early in the year, prices for this commodity moved downward steadily in 1913 and, after opening at $10, they closed at $2.60 for spot lots in cases, as a result of anticipation and final realization of a lowering of the American import duty from 25 per cent. ad valorem to 50 cents per pound and as well as in consequence of the gathering and preparation for market of a "bumper" crop of mint and of the finished product in Japan, figured at about 1,250,000 pounds of this article. As there was no serious damage to the growing mint crop by heavy rains, frosts cyclone or tornadoes, such as greatly curtailed the yield in the spring of 1912, the production was exceptionally large and a drop from $10 to $6.25 therefore occurred in the first half of the year, when it became evident that the yield would reach big proportions. Under the stimulus of the materialization on this large yield and the lowering of the import duty, prices were reduced in the fall of the year to $2.60 in cases, but since then a partial recover has been effected as a sequel to a strike of the laborers in the mint fields, immediately prior to the shipment of the last gleanings of the new crop to the primary centers of Japan, and a temporary depletion of spot stocks here.

The following summary shows the high and low prices for each month during the last four years:—

	1913. H.	1913. L.	1912. H.	1912. L.	1911. H.	1911. L.	1910. H.	1910. L.
Jan.	10.25	10.00	6.90	6.75	3.75	3.45	2.75	2.75
Feb.	9.50	8.00	6.80	6.45	5.00	4.00	2.75	2.65
Mar.	8.50	8.10	6.65	6.65	5.00	4.40	2.65	2.60
Apr.	8.00	7.35	6.50	6.00	4.50	4.20	2.65	2.65
May	7.25	6.80	6.50	6.40	4.65	4.45	2.65	2.65
June	7.00	6.60	6.75	6.50	5.00	4.65	2.75	2.65
July	6.25	6.20	6.75	6.00	5.25	4.90	2.90	2.70
Aug.	6.50	6.20	5.75	6.60	4.90	4.85	2.95	2.90
Sept.	6.00	6.00	6.75	6.50	5.25	4.75	3.20	2.95
Oct.	5.75	3.90	10.00	9.25	6.75	5.25	3.40	3.25
Nov.	3.85	3.90	14.00	13.00	6.75	6.50	3.40	3.35
Dec.	3.25	2.70	14.00	13.00	6.75	6.50	3.40	3.35
Year	10.25	2.70	14.00	6.00	7.00	3.45	3.45	2.60

High and low quotation for the years 1895 to 1908 follow:—

	High.	Low.		High.	Low.
1895	$4.75	$4.00	1902	$7.00	$3.80
1896	4.75	2.50	1903	8.00	5.25
1897	4.20	1.85	1904	6.25	2.50
1898	2.60	2.00	1905	3.00	1.75
1899	3.00	1.20	1906	2.90	2.15
1900	3.90	2.35	1907	2.60	1.90
1901	4.75	3.50	1908	2.15	1.85

Mercurials.

Both hard and soft mercurials have been marked down heavily within the year in recognition of a lowering of the American import duty for calomel from 35 per cent. to 20 per cent., a reduction in the cost of quicksilver and increasing competition among domestic manufacturers and especially on the part of interests which had entered the field within the last few years. Three important reductions in quotations for hard mercurials occurred last year, the first amounting to a drop of 5c., which made the price for American calomel 75@80c.; that for busulphate of mercury, 49@53c.; that for red precipitate, 85@95c.; that for white precipitate, 90@95c., and that for corrosive sublimate, 66@71c. in crystal form, and 67@72c. in powdered form. A further reduction in prices, amounting to 6c., was recorded in hard mercurials on October 7 and still another lowering of prices to the extent of 6c. was noted on October 22, making American calomel prices 63@69c.; bisulphate of mercury quotations, 37@41c.; red precipitate, 73@83c.; white precipitate, 78@83c., and corrosive sublimate crystals, in granular and powdered forms, 54c., in lots of 50 pounds and more in one delivery. Soft mercurials were reduced 2c. on October 8, making the revised quotations for blue mass 40@44c.; for citrine ointment, 37@38c.; for mercury and chalk, 41@43c.; for mercurial blue ointment, one-third mercury, 36@37c., and for mercurial ointment, one-half mercury, 46@47c.

Nitrate of Silver.

Though subject to frequent fluctuations in an upward, as well as in a downward, direction, dictated by the uplifts and reductions in the cost of the precious white metal, this derivative was marked down in 1913 from basis of 40½c. per ounce in 500 to 1,000-ounce lots to 36¾c. in such quantities, the downward movement being continuous from the beginning of the year to the middle of July, when 36¾c. was reached, and resumed, after a partial

recovery, to 39c., at the close of September, until 36⅜c. was reached at the outset of December. From that level, however, there was a fractional recovery, to a basis of 36⅛c., and at the close of the year quotations were 36¾c. per ounce in 500 to 1,000-ounce lots, 37⅜c. in 100-ounce lots and 38¾c. in smaller quantities down to a single ounce.

Rochelle Salts.

Keen competition among domestic manufacturers brought about a reduction of a cent in prices asked for this commodity in powder form toward the end of the third quarter of 1913, which made the revised quotation 18½c. per pound in single barrel lots and 18c. per pound in five-barrel lots. Recently, however, prices were lowered a half cent, making present quotations 17½@18c.

Santonine.

The German manufacturers of this article who enjoy the privilege of the contract for making it for the Russian Government monopoly made no notheworthy changes in prices asked for this commodity either in crystal or powdered forms during 1913, but recently have raised their quotation $1.60 to $27.60@28.10 for the crystals in bulk and to $28.10@28.60 in powdered form.

Seidlitz Mixture.

Domestic manufacturers of this article marked up their prices to the extent of a cent on September 6, 1913, making their revised quotations 15c. in single barrel lots and 14½c. in five-barrel lots. Recently they have reduced their prices a half cent to 14c. in five-barrel lots and to 14½c. in single-barrel lots.

Sugar of Milk.

Removal of the import duty of 5c. per pound compelled domestic manufacturers to lower their prices for this commodity from 18c. to 16c. in 1913, as this elimination of the hitherto existing tariff wall permitted the importation of Holland and other European goods and, even before the new tariff law became effective, domestic makers dropped their prices from 18c. to 16½c. Following the enactment and enforcement of the new tariff law, domestic makers dropped their contract prices to 16c. and even outside lots in second hands became available at that figure. The supply of milk, available for the making of sugar of milk, continued relatively small in the United States.

Other Miscellaneous Articles.

Crude iodine was advanced 1½ pence, to a basis of 9 pence, on August 25, 1913, and revised quotations for derivatives thereupon became:—Resublimed iodine, $3.55@3.60; iodoform, $4@4.05, and iodide of potash, $2.95.

Cyanide of potash preparations were reduced early in October of 1913, in recognition of a lowering of the import duty on cyanide, placing the revised quotations for this article on a bulk basis of 19@22c., according to quantity. Permangamate of potash, however, remained at 9¾@10c. and iodide of potash at $2.95@3 in bulk. Quotations for other cyanide preparations were also lowered similarly to 17@20c. for cyanide of sodium and to 18@21c. for the cyanide mixture, of the 98 to 99 per cent. description.

Strychnine, was reduced during the second week of October, to the extent of 5c., in crystals and in powdered forms as well as in the form of salts, in consequence of an elimination of the import duty for this article, making the revised quotations 50c. for alkaloid crystals in bulk and for the powdered alkaloid in single ounce vials as well as for sulphate crystals and for the powdered grade in one-ounce vials, 55c. for the alkaloid crystals in eight-ounce vials or for sulphate crystals and the powdered form in bulk, 70c. for powdered alkaloid in eight-ounce vials and for sulphate crystals or the powdered form in eight-ounce vials, in lots of 100 or more, in one delivery or on contracts covering four months with protection. A further deduction of 4c. has occurred since then.

Salicylate of soda, salicylic acid, methyl salicylate and salol were reduced on October 13, in view of a lowering of the import duty for salicylic acid from 5c. to 2½c. per pound, the revised quotation for soda salicylate being 3 cents lower at 30@32c., as to quantity, that for salicylic acid, being 3c. lower at 26c. in 25-pound lots and 27c. in smaller quantities, that for methyl salicylate, or artificial wintergreen oil, being 3½c. lower at 27@30½c. and that for salol being 10c. lower at 55@57c. in bulk, 75@77c. in one-pound bottles, 80@82c. in half-pound bottles and $1@1.02 in quarter-pound bottles.

Chloral hydrate was reduced 30c. on October 23 to 23c. in 100-pound lots, drums included, 24c. in 100-pound lots, 25-pound jars included; 26c. in 25-pound lots, jars included and 35c. in twenty-five pound bottles, cost of bottles included.

Hypophosphites were lowered 6c. on October 18 to 54c. for hypophosphites of lime in 100-pound lots and 56c. in twenty-five pound lots while for hypophosphites of potash and soda, prices were revised to 59@60c. in 100-pound lots and to 61c. in twenty-five pound lots.

Cocaine hydrochloride was advanced 25c. at the close of September in anticipation of a doubling of the duty, by an advance of $1.50 to 3 per ounce, to $3.35@3.60; reduced 15c. on October 22 to $3.20 in bulk and, in some quarters, lowered 80c. further to a basis of $2.60 in bulk. A majority of domestic manufacturers, however, are still asking a minimum of $3.10. The sharp downward revision of prices was due to keen competition among manufacturers resulting from a further curtailment of sales of this narcotic by legislation in several states restricting its marketing and the prospect for a speedy passage of the Harrison bill by Congress as well as by an attempted enforcement of the terms of a United States Treasury Department decision compelling registration of every transaction in this article.

Caffeine prices were advanced 25c. per pound to $3.40 in 50-pound lots early in October, in recognition of an advance in the import duty for this commodity from 25 per cent. to $1 per pound.

ACIDS.

Carbolic.

Overproduction in Great Britain and the Continent and consequent heavy shipments to all the consuming centers, caused a further noteworty marking down of prices in 1913. In bulk, quotations for the crystals were reduced, at first by the so-called "outside" interests, but later by the leading handlers of the commodity, from a basis of 14c. in carload lots to 7¼c., while prices for smaller quantities were lowered proportionately from 16c. to 8c. In pound bottles, moveover, quotations were dropped by the principal manufacturers, under keen, competition, from 18c. to 13c. Since the turn of the year increased absorption of the stocks abroad and at home has so materially reduced the supply as to bring about a slight recovery from the lowest figures named for the crystals in bulk, but no similar uplift has yet been noted in prices for the pound bottles.

Citric.

A remarkably upward movement characterized the course of prices in the market for this acid, in consequence of a noteworthy curtailment of the California and Florida citrus crops, and such a virtual depletion of supplies of both limes and lemons in Sicily at the outset of the summer season. From 38½c. in barrel lots and from 39½c. in kegs, the crystals were advanced at the beginning of February to 40c. and 41c., respectively, and from the last level mentioned they were worked up again about the middle of May to 41½c. and 42c., respectively. Then followed advanceh to 43c. and 43½c. about the middle of June, and a further uplift to 44c. and 44½c. at the outset of July and still another advance to 46½c. and 47c. at the close of that month. At the end of August still another marking up of prices occurred, carrying quotations made by the domestic manufacturers to 47½c. and 48c., and about the middle of that month, asking figures were raised again, this time to 52c. and 52½c., while at the close of the month, a last uplift carried prices to 55c. and 55½c. From that level, however, there was a recession at the beginnig of December to 52c. and 52½c., and a week later a reduction to 51c. and 51½c. was announced, these figures being those recorded at the end of the year. Even at the high level of 55@55½c., domestic manufacturers were unable to fill orders from any consumers except regular customers, and were compelled to limit the amounts which they delivered to these customers to meager proportions. Citrates were marked up commensurately, being advanced a cent and a half early in February, a cent at the close of May, two cents toward the end of July, two cents further at the close of that month, four cents about the middle of September and two cents further at the close of that month, final quotations for the citrates being as follows:—Iron citrate, U. S. P., 60c.; iron and ammonium citrate, iron phosphate, U. S. P., iron pyrophosphate, U. S. P., 57c.; potassium citrate, 50c., and sodium citrate, 51c.

Salicylic.

In anticipation of, and in view of the realization of a lowering of the import duty for this acid, from 5 cents to 2½ cents a pound, manufacturers of the pharmaceutical description lowered their prices in 1913 from 31c. in 100-pound lots, to 25c. in such quantities, while dropping their quotations for this article in 25-pound lots from 32c. to 26c., and that for smaller quantities from 33c. to 27c.

Tannic.

A lowering of the import duty for this acid from 35c. per pound to 5c. per pound, found reflection on October 11, 1913, in a reduction in the prices asked for the pharmaceutical grade amounting to 13c., which carried the quotation for that variety off from 65@67c. to 52@54c., and that for the U. S. P. description from 70@72c. to 57@59c.

BALSAMS.

An imposition of an import duty of 10 per cent. upon all the balsams, hitherto free of duty, was reflected to prices asked for these articles to a far lesser extent than had generally been expected.

Copaiba.

After advancing throughout the first five months of the year, prices for the South American balsom were lowered in the last seven months of 1913 to levels close to those noted at the outset of the twelvemonth. The upward movement was due princapally to a growing shortage of stocks of the genuine balsam of direct importation from the producing country and increasing difficulties experienced in replenishing spot supplies, while the consequent lo.s of the early uplift was caused by the arrival of more liberal stocks here. As the marketing of the so-called "Hamburg" goods, or U. S. P. standard balsam, ceased at the end of the first half of the year, the nominal quotation for this article remains at the levels reached at the culmination of the first five months' uplift. From 45c., the true balsam was lifted to 50c. at the beginning of June, but was dropped to 44c. before the end of July and raised again to 45c. at the end of October and to 46c. in the second week of November, closing at that figure. The "Hamburg" goods, which had begun to be made in this country, opened the year at 42c., advanced to 43c. early in April and to 45c. in the following week and hung at that level since then. The Para balsam likewise was offered off in the second half of the year, following a leap upward from 50c. to 60c. and, at the close of the twelvemonth, the quotation for this commodity had been marked down to 48c.

The following table shows the range of quotations over the year, but loses much of its significance because the figures represent the views of holders of goods of a doubtful origin:—

COPAIBA, SOUTH AMERICAN.

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January	38	38	52	42	45	45
February	38	38	52	42	45	45
March	38	38	52	42	45	45
April	40	38	55	42	50	46
May	40	40	55	42	50	50
June	42	40	55	42	50	47
July	42	39	55	42	47	44
August	39	38	55	42	44	44
September ...	38	38	55	42	44	44
October	38	38	50	48	45	44
November ...	40	40	47	46	46	45
December ...	42	40	47	46	48	46
Year	42	38	55	42	50	44

Fir.

Another period of great scarcity of stocks, both in the producing regions and here, caused an advance for the Canada balsam in the first half of 1913 from $6.50 to $12, but from that level, there was a recession to $10. Similarly the Oregon balsam was advanced from 82c. to 85c. in the third week of January, then to 87½c. at the end of January, and to $1.25 in the second week of March. Before the end of the last-mentioned month prices were raised to $1.75 and then to $2, but from that level there was a recession to $1.65 and, although a partial recovery toward the end of April brought the price to $1.75 again, it was marked down to $1.50 and then to $1.35 before the end of July and to $1.30 in the following month and closed the year at the last-mentioned figure.

Peru.

An uninterrupted marking down of prices occurred in this balsam in 1913, despite its temporary assessment for duty at 20 per cent. under the provisions of paragraph 49 of the new tariff law, as more liberal supplies inspired keen competition among local holders. From $1.70, prices were lowered to $1.50 by the end of the year.

Tolu.

Though recovering occasionally from the lowest levels, to which it was marked down under keen competition as spot stocks became more liberal, prices for this balsam took a generally downward course during the greater part of 1913 and, after opening at 80c. and dropping to 75c. by the middle of June, advancing to $1 by the end of August, the quotation was lowered again to 55c. about the middle of November and advanced to 70c. about the middle of December, to close at 65c.

BARKS.

Cascara Sagrada.

Despite numerous reports from the Pacific Coast telling of a serious curtailment of the year's yield of this bark, due to exceptionally long-continued rainy weather which made it difficult for the gatherers to peal the usual quantity, prices for this bark were marked down from 8c. for the three and four-year-old variety to 7¾c. and from 8½c. for the two-year-old description to 8¼c., while for the new bark the quotation was lowered from 10c. to 9½@10c.

The following table shows the highest and lowest prices by months during the last five years, based on the figures for new bark, older goods usually bringing a premium of 1@1½c.:—

CASCARA SAGRADA.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan..	8½	8½	7	7	7½	7½	10½	9	8	7¾
Feb..	8½	8½	7	7	7½	7½	10½	9	7¾	7¾
Mar..	8½	8½	7½	7	8	7½	10½	9	7¾	7¾
Apr..	8½	8½	7½	7½	8	8	10½	9	7¾	7¾
May..	8½	8½	7½	7½	8	8	10½	9	7¾	7¾
June..	8½	8½	7½	7½	8¼	8	10½	9½	7¾	7¾
July..	8	8	7½	7½	9	8½	10½	9½	7¾	7¾
Aug..	8	8	7½	7½	9	9	10½	9½	7¾	7¾
Sept..	8	8	7½	7½	9	9	10½	9½	7¾	7¾
Oct...	8	8	7½	7½	9	9	10	8	7¾	7¾
Nov..	7	7	7½	7½	9	9	10	8	7¾	7¾
Dec..	7	7	7½	7½	9	9	10	8	7¾	7¾
Year.	8½	7	7½	7	9	7½	10½	8	8	7¾

Condurango.

A diminishing demand for this bark, coupled with increasing supplies, brought about a reduction in prices asked for it in 1913 from 14c. to 12½c.

Cottonroot.

In the hope of stimulating a steady falling off in the demand for this bark, leading handlers reduced their prices last July from 6½@7c. to 6@7c. and continued to offer it at the last-mentioned figures up to the end of the year.

Elm.

Except for some shading of prices about the middle of July, the market for the select bark in bundles remained unchanged throughout 1913, opening at 17@22c., as to quality, being marked down temporarily to 16@22c. in the mid-year period and being restored to 17@21c. at the beginning of August and continuing at these figures thereafter.

Lemon Peel.

As supplies of this commodity became more liberal toward the close of February, holders generally lowered their prices to the extent of three-quarters of a cent from 7½@8c. to 6¼@7c. and continued to offer it at these levels throughout the remainder of the twelvemonth.

Prickly Ash.

A noteworthy falling off in the demand for both Northern and Southern varieties and a resultant accumulation of stocks in the country as well as in the local market brought about a lowering of prices from 16@18c. to 14@16c., as to quality.

Soap.

A virtual depletion of stocks of the whole bark made it impossible to name any but a nominal quotation for this description of the article until the outset of September when a small quantity again became available. As an export tax was then imposed by the government of the producing country, the cost of this bark to local importers was raised materially at the beginning of the fall season, when the average figures asked by them were 8@8½c. At the close of the year, the variety in quality of the bark made it desirable to widen the range of prices for it to 8½@9½c. The cut bark, which opened the year at 9@10c., was advanced to 9½@10c. in September and to 10c. in the following month, but was again offered at 9½@10c. in December. The crushed bark, which opened at 8½@9c., as to quality, was likewise advanced to 9½@10c. in September and to 10c. in October, but closed at 9½@10c.

Wahoo.

The bark of the root, which was available at 34@36c. throughout the first seven months of 1913, was marked up to 36@50c., according to quality, at the close of August and to 38@50c. early in December, being advanced to 45@50c. later in that month and closing at 42@50c., as to quality. The sharp uplift of asking prices was due to a virtual depletion of spot stocks and the concentration of the meager remaining supplies here in a very few hands. Only the absence of an active demand prevented a runaway market for this bark.

BEANS.

Tonka.

Noteworthy lowering of prices for the Angostura beans occurred in 1913 in anticipation and upon the realization of an exceptionally large crop along the banks of the Orinoco River, and a consequent liberal replenishing of the almost exhausted stocks in the consuming centers. Instead of reaching the large proportions expected in the triennial season, the 1912 yield of these beans proved unusually small, because of long-continued drought in the producing regions, and there was little of the 1912 crop left in dealers' hands in this market when the new year began. Prices for the meager offerings then made here were on a basis of $5@5.50 per pound, and held at that level until early in the summer, when it became evident that the new crop would be a "bumper" one and would probably reach 750,000 pounds, of which, however, the leading tobacco manufacturers had contracted for fully 90 per cent. Much lower figures were then named for nearby arrivals of the new crop beans and, when it became evident that the yield would be very large, prices for spot goods were reduced from $5 to $3.50; then to $2, and late in August to $1.75. This figure continued to be quoted until just before the close of the year, when the quotation was lowered again, this time to $1.60, though $1.75 continued to be named for some especially choice beans. Para beans, which were offered in constantly diminishing quantities early in the year, to supplement the scanty stocks of the Angostura beans, were withdrawn from the market as soon as it was apparent that the new crop of Angosturas would be of "bumper" proportions and, after commanding $2.50 for seven months, Paras disappeared from the market for six weeks, to re-appear only occasionally and to be offered then at 75c. to $1.10. A slightly stronger tendency became evident in the market for these beans early in December, when $1.10 was generally asked for them, but at the close of the year there were none available at any price. Surinam beans, like the Paras, were in demand and held at relatively high figures only while the scarcity of the Angosturas made it necessary to supplement stocks here with these beans. For six and a half months Surinams continued $4@4.50, but the

quotation for them was broken sharply to $1.75@2 about the middle of July, and fell to $1 early in September. Thereafter, these beans were unobtainable at any figure.

Calabar.

Though in slightly better supply at the outset of 1913 than during the last half of 1912, these beans were still so sparingly offered by the few dealers, in whose hands supplies were concentrated, that they commanded 55@60c. at the beginning of the year, and 60@65c. in February. Thereafter, however, more liberal offerings were made on all sides and the price broke to 35@37c. in March, and to 25@35c. in April. In May the quotation settled itself at 25@35c. and remained at that level throughout the remainder of the year.

Vanilla.

Continuance of revolutionary activities in Mexico and a temporary invasion of Papantla by rebel forces collecting forced "loans" for their cause from the curers in that region, together with the imposition by the United States of an import duty of 30 cents per pound upon all beans of this description brought into this country, and finally, the expectation, subsequently realized, of the imposition by the Mexican government of an export tax of about 40 to 50 cents per pound, constituted the controlling influences in the Mexican vanilla bean situation in 1913, to an even greater extent than the actual yield of these beans in the Papantla and Gutierrez-Zamora districts. The 1912-1913 crop in these regions, however, reached the satisfactory proportions of 200,000 pounds of whole beans, and 80,000 pounds of cuts, or a total yield of 280,000 pounds, and the 1913-1914 crop is expected to be about the same. Most of the 1913-1914 crop beans were gathered in "green" state at an exceptionally early period, virtually the entire crop being picked and in curers' hands before Christmas of last year. Difficulties experienced by the curers early in the buying season, because of the lack of necessary silver demanded by the native planters, were overcome by the acceptance on the part of these planters, of promissory notes in part payment of the curers' indebtedness to them for the new crop beans, but after offering deliveries of the whole beans in June and July of 1914 on a basis of immediate payment therefor, in American gold, which would have afforded them an ample margin of profit through taking advantage of the abnormally high rate of exchange, due to the unceasing revolutionary disturbances in Mexico, the Mexican curers generally ceased offering the new crop beans and confined their operations almost entirely to the sale of the new crop cuts which have so far proved of unexpectedly good quality.

At the outset of 1913, the 1911-1912 crop whole beans became exhausted and, although the curers continued to buy the 1912-1913 crop whole beans from the native planters, they limited their sales to the cuts of both these crops. The quality of the 1912-1913 crop beans proved much better than expected, though not quite equal to that of the 1911-1912 crop, which was the best gathered and cured in a decade. Original estimates on the 1912-1913 crop called for a yield of 150 pounds of whole beans and 80,000 pounds of cuts, but subsequent estimates were expanded so as to embrace yields of 160,000 pounds to 170,000 pounds of whole beans and 90,000 to 100,000 pounds of cuts, a combined output which would have been only slightly smaller than that of the 1911-1912 crop. It was later discovered that the actual yield of the 1912-1913 crop included 200,000 pounds of whole beans and 80,000 pounds of cuts, as mentioned above. Few contracts for the whole beans of the 1912-1913 crop were placed by the New York operators with the curers until March of last year and the curing operations were greatly delayed as the curers generally expected trouble in shipping the goods, and therefore took much longer than usual in perfecting the curing.

Fairly large purchases of the 1912-1913 crop beans were made, however, early in April, and the market for these beans held very firm, especially after it was reported that the new tariff bill provided for an American import duty of 50c. a pound upon all vanilla beans, which had hitherto been admitted to this country free of duty. The prospect for the imposition of such an import duty stimulated buying operations materially, as the New York operators were naturally desirous of obtaining the beans before the new tariff became operative, and by the end of April virtually all the 1912-1913 crop of beans had been contracted for. In the late summer, however, the Underwood tariff measure was so amended as to make the contemplated import duty for vanilla beans 30c., instead of the originally proposed 50c. per pound, but even the outlook for the imposition of this lesser duty augmented the desire of the New York operators to obtain their stocks of new crop goods as soon as possible. Just before the end of the summer, moreover, rebel forces entered Papantla and made forced collections of money from the curers, to assist in their cause, and the growing fear that the rebels would commit serious depredations led to a stiffening of prices for the beans in curers' hands. This fear grew daily, after it became known that the rebels had surrounded Tezuitlan, the terminus of the railroad leading southward in the general direction of the curing regions and about 100 miles north of Papantla. Although the rebels were soon driven away from Papantla by the government's rurales and other soldiers and the surrounding Tezuitlan was of brief duration, the latter act on the part of the rebels, coupled with their subsequent destruction of a large portion of the railroad tracks between Oriental and Tezuitlan, sufficed to shut off all shipments of silver from the producing regions, where the cash was needed greatly in financing the payment for the new crop beans. New York operators had previously declined to make any accommodations to the curers for the purpose, and after having loaned money to the curers at ruinous rates of interest, averaging 12 per cent. instead of the customary 8 and 9 per cent., the banks in Mexico City likewise refused to make further loans and finally were compelled to close their doors for several enforced holidays, as the government's finances and their own were in jeopardy. Buying of the first of the 1913-1914 crop "odds and ends," "windfalls" and "droppings," by the curers was begun about October 10, and after the curers had explained their inability to obtain silver coin in sufficient quantities to pay for the entire crop of "green" beans, the native planters agreed to accept notes for a large portion of the curers' indebtedness. The new crop "green" beans brought as high as 1 peso, or $1 Mexican, equivalent to about 50 cents in American gold, per pound; and the curers thereupon began to assume stiffer views of the situation until they saw a prospect for making large profits by taking advantage of the abnormally high rate of exchange. They then offered May-June-July deliveries of the 1913-1914 crop whole beans at relatively low figures, on a basis of immediate payment in American gold, but the New York operators declined all these offers and transactions in the 1913-1914 crop beans were therefore postponed.

The 1912-1913 crop whole beans were offered by New York operators at $3.75 @4.75, as to brand, at the outset of 1913, and after concessions to $3.62½@4.50, as to quality, had been made early in February the prices generally asked by these operators were $3.87½@4.50 during March and the first half of April. In the second half of that month, however, the average quotations were advanced again to $4@5, according to brand; but in June they were lowered to $3.75@5, at which level they remained throughout the remainder of the year. The Mexican cuts of the 1912-1913 crop were available at the outset of the year at $3@3.25, as to quality, but were advanced to $3.25@3.35 at the close of April. About the middle of June, however, they became available at $3.12½@3.25, and although occasionally marked up thereafter to $3.25@3.37½ they generally failed to command more than $3.12½@3.37½. The 1913-1914 crop cuts, which began to be offered in November, were quoted at $3@3.25 throughout December, but have since then been raised to materially higher prices, in consequence of the imposition by the Huerta government in Mexico of an export tax of $2 Mexican silver per kilo, equivalent to 40@45c. per pound in American gold. This export tax has not yet been reflected in the prices asked for the whole beans, but undoubtedly will be recognized in a further uplift of quotations for these goods within the near future.

A summary of high and low prices for Mexican beans during recent years follows, the basis being the cheapest goods on the market:—

MEXICAN WHOLE BEANS.

	Per pound—	
	High.	Low.
1900	$11.00	$9.00
1901	9.00	6.75
1902	6.75	4.75
1903	6.50	5.00
1904	5.00	3.75
1905	3.50	2.75
1906	2.75	2.75
1907	4.25	2.75
1908	4.25	3.00
1909	3.25	2.75
1910	3.37½	2.75
1911	4.00	2.75
1912	5.00	3.50
1912	5.00	3.50
1913	4.00	3.62½

A comparison of quotations for Mexican cuts in the local trade is afforded by the following summary:—

MEXICAN CUTS.

	Per pound—	
	High.	Low.
1900	$9.00	$7.75
1901	8.00	5.75
1902	5.75	3.25
1903	4.00	3.50
1904	3.50	2.50
1905	2.50	1.50
1906	2.15	1.75
1907	3.87½	2.00
1908	3.75	2.00
1909	2.62½	2.25
1910	3.12½	2.25
1911	3.75	2.37½
1912	3.85	3.20
1913	3.25	3.00

Bourbons were strongly held throughout the year, in consequence of the continued operations of the leading handlers of these beans in Paris, Marseilles and Bordeaux, France, and in view of the expected, and later realized, imposition of an American import duty of 30 cents a pound and serious damage to the 1912-1913 crop by a cyclone which swept the islands of Reunion, Grand Comore, Nossi-Be and Tullear, from the disastrous effects of which it was feared that the vines could not recover within less than three years. At the outset of the year business in these beans was restricted by the uncertainty surrounding the outcome of the Balkan war and the possibility of increased taxation in France as well as in many of the other Continental countries, resulting from the outlook for international complications as a sequel to the Austrian disturbance and other political upheavals and unrest in Europe. Many of the shipments of beans which reached this country early in the year were of poor quality, such damaged goods having been sent here under the guise of sound beans and a natural resultant prejudice against these beans therefore developed among American handlers. The quality of the beans shipped here soon began to improve, however, as the Paris-Bordeaux syndicate of operators bought up virtually all offerings and eliminated from their stocks, thus acquired almost all of the damaged beans. Although this syndicate subsequently dissolved, presumably in view of the possibility of government proceedings against them under the provisions of a national law similar in effect to the American Sherman "anti-trust and conspiracy in restraint of trade" law, they continued to operate with some degree of unity and succeeded in buying all the February and later arrivals of the beans from the islands at Marseilles and also in contracting for the remainder of the 1912-1913 crop of these islands. Having thus secured a virtual control of the situation in France and on the producing islands, these French operators raised prices for "queues" from 28 to 30 francs, then to 32 francs and at length to 33 francs per kilo and held their stocks on that basis until they had marketed all of that crop's goods. A strengthening influence was then injected into the situation by proposals for imposing an American import duty of 50 cents per pound upon all Bourbon as well as upon all other vanilla beans and, although the Underwood tariff bill was subsequently amended so as to make this import duty only 30 cents a pound, this impost upon the beans nevertheless sufficed to stiffen the market for them in this country to some extent, though by no means to the degree noted abroad as a result of the heavy damage to the crops on the islands visited by the February cyclone and in consequence of the operations of the Paris-Bordeaux-Marseilles handlers. Thus, although "heads and tails" soon commanded 36@38 francs per kilo and superior brands of whole Bourbon beans brought 38@42 francs in the French markets, New York operators continued to offer their stocks at $3@3.75 until the middle of April, when they offered them at $3.10@3.75 and, although they raised their quotations in May to $3.10@4, they again quoted their stocks at $3@4 and even at $3@3.75 in the last four months of the year, when stocks in Paris became fairly large, though firmly held, and new arrivals at Marseilles became heavier than hitherto.

The following table shows the high and low levels of Bourbon beans in the local market during the last few years:—

BOURBON BEANS.

	Per pound—	
	High.	Low.
1900	$4.50	$4.00
1901	4.75	3.00
1902	3.00	2.50
1903	2.50	1.50
1904	1.50	1.50
1905	1.50	1.00
1906	1.50	1.00
1907	3.00	1.25
1908	3.00	1.50
1909	3.00	1.75
1910	3.00	2.75
1911	3.75	2.75
1912	4.50	3.00
1913	3.10	2.75

South American beans held firm throughout the year, as the Guadaloupe crop proved of exceptionally small proportions, with a total yield of only about 30,000 pounds, due to the refusal of many former cultivators to plant the beans in 1912, because discouraged by the unceasing peculations of both "green" and cured beans by the natives. All the 1912-1913 crop beans were bought on the island of Guadaloupe early in the spring and the purchases of the New York operators reached here about the middle of April. From a basis of $3, price asked for these beans were raised about that time to $3.50 and were held at that level until late in the year, when they were offered at $3.25 again and finally at $3.12½@3.50, as to quality. A few especially desirable lots of 1911-1912 crop Guadaloupe beans were maintained throughout the first nine months of 1913 at $4, but were later offered at $3.75 and even at $3.50. The 1913-1914 crop of Guadaloupe beans proved of about the same proportions as the 1912-1913 crop but was held at such abnormally high figures as to discourage buying on the part of the New York operators, who stood aside and permitted French houses, and especially one newly formed combination of French operators, to purchase virtually the entire yeld.

Tahitis were in constantly improving demand throughout the year, in view of the relatively low figures at which they were offered prior to the imposition of the American import duty of 30 cents per pound, and were strongly held throughout the greater part of the twelvemonth as arrivals from the islands of production became smaller and smaller. Although buying by Hamburg operators was temporarily curtailed by the necessity for paying the additional cost of the beans, arising from the imposition of the American import duty, the purchasing movement proved sufficient to absorb all current offerings on the Pacific coast and, despite occasional shading of prices by a few San Francisco handlers, prices were maintained here generally on a basis of $2@2.15 for the green label and at $2.10@2.20 for the white label beans throughout the year. At the outset of the period, the white label beans were held at $2.10@2.20 but were soon shaded to $1.90@2 and then as speedily restored to $2@2.15. The green label beans were similarly marked down from $2@2.05 to $1.75@1.85 and then to $1.70@1.80, only to be restored to $1.85@1.95 and later in the year, the green label beans were held at $1.95@2 while the white label description was maintained at $2.10@2.15. With the imposition of the American import duty of 30 cents a pound, however, green label beans were advanced to $2.35@2.50 and the white label variety to $2.50@2.75, but from these levels there was a reaction toward the close of the year to $2.05@2.15 for the green label and $2.10@2.20 for the white label descriptions. When it became apparent that the imposition of the new 30 cent duty upon Tahiti beans would probably drive the Hamburg operators out of the San Francisco market, Representative Raker, of California, introduced a bill into the House of Representatives to permit the repacking of these beans in bonded warehouses in that center and the sale of the beans from such bonded warehouses to foreign buyers without payment of this import tax. Another bill, introduced by Representative Raker, sought to prevent the assessment of Tahiti beans for duty at the new rate except when their market value was above a certain limit.

BERRIES.

Cubebs.

Though very strong held throughout the first eight months of 1913, in view of the comparatively limited character of offerings, these berries became available at materially lower levels during the greater part of the last four months of the year, as a result of the harvesting of a crop of normal proportions and consequent freer offerings of the goods. Thus, although the whole berries were maintained at 40@42c. from January until the end of August, they were quoted at 38@40c. during September, October and November and most of December and were restored to a basis of 40@42c., as to quality, only just before the close of the year. Similarly, the XX quality beans were well maintained at42@45c., as to quality, until the end of August, when they were offered at 40@42c., and were lifted again at the close of the year only to the extent of a cent, to 41@43c.

Juniper.

In consequence of a growing shortage of 1912 crop berries, due to a serious curtailment of that year's yield and a subsequent speedy reduction of stocks in this country to meager proportions, prices for these goods were advanced from 3¾@4½., as to quality, early in the year to 4@4½c., about the middle of March. Another uplift to 4¼@4½c. occurred at the end of July and these figures were maintained until October, when offers were again made at 4@4½c., as it became evident that, despite rumors to the contrary, the new crop had proved of sizable proportions. Then followed a further marking down of quotations to 3½c. for the ordinary to good quality berries and to 4c. for the most desirable varieties.

Prickly Ash.

Though subjected to a material downward movement in the summer months, when offerings reached proportions far in excess of the demand, these berries were restored at the close of the year to the level which they had reached at the outset of the twelve months. From 25@30c., as to quality, prices for these berries were dropped in June to 22c. and in July to 19c. At the end of September, however, they were restored to 24c. and in December to 25@30c.

Saw Palmetto.

Despite reports from Florida, telling of serious curtailment of the 1912 and 1913 crops and exceptional delays in the drying of these berries by the sun, prior to their shipment to the local market, prices were lowered steadily from the beginning of the summer season until the turn of the year, so that, after opening at 25@30c. and then advancing to 35@40c. in January and being held at these levels until the end of May, the quotation for the berries was dropped thereafter to 30@35c., then to 28@30c., to 25@37c., to 23@25c. and to 20@23c., to wind up the twelvemonth at 18@20c.

ESSENTIAL OILS.

Almond.

As a direct consequence of the imposition of an import duty of 5 cents per pound upon sweet almond oil and the subsequent action on the part of the

New York Custom authorities in assessing this oil at an ad valorem rate of 20 per cent., under the provisions of paragraph 17 of the new tariff law, when put up in containers of two and a half pounds or less, prices for this article were advanced sharply in the second and last quarters of 1913. Opening at 60@65c., as to quality, the quotation for this oil was marked up to 65@70c. about the middle of April, and although it fell back to 64@68c. a week later, it held at substantially those levels until November, when the imposition of an ad valorem duty of 20 per cent. was begun by the local appraiser, and collector on the pound bottles of this oil. Then the prices generally asked were advanced to 75@78c., and in December they were marked up further, this time to 80@90c. Although the Treasury Department has since decided that this oil is not dutiable under the provisions of paragraph 17 of the tariff law, but should be assessed merely at the specific rate of 5 cents per pound, the prices reached at the close of last year are still being asked for this commodity. The so-called peach kernel almond oil was offered throughout the year at 22@28c., according to quality.

Anise.

Although assessed for duty on and after October 4 at the new import tax of 20 per cent., this oil was quoted at the close of 1913 only a little higher than at the opening of the twelvemonth, as a noteworthy recession in the primary markets in China more than offset the increased cost necessitated by the imposition of the new duty. At the beginning of the year this oil was quoted by local importers at $1.60@1.65, but it was marked up to $1.70 toward the end of February and was firmly held at $1.65@1.75 in March and April, and once more at $1.70@1.75 at the outset of May. Later, concessions of 2½c., which carried the quotation off to $1.67½@1.72½, were made by local importers and other holders, and in August the average quotation was reduced 2½c. further to $1.65@1.70. The last-mentioned figures prevailed until the close of the year.

Bay.

More liberal offerings of this oil than those noted in the previous year brought the quotation therefor down heavily in 1913. After opening at $2.70@2.80, prices asked for this oil were lowered to $2.65@2.70 in February, to $2.60@2.65 in March, to $2.55@2.60 in April and to $2.45@2.60 in June. Two months later, a further reduction to $2.40@2.50 occurred and the last-mentioned figures were in force up to the end of the year.

Bergamot.

Despite the imposition of an import duty of 20 per cent. on this Messina essence, prices for it were not raised in 1913. On the contrary, the quotations made by local importers were lowered materially, in view of a slackening of speculative operations for a rise in the Sicilian markets and a noteworthy curtailment of buying on the part of American and other consumers. The gathering of an exceptionally large crop and liberal pressings of oil high in esters toward the close of the twelve-month also intensified the weak undertone which prevailed in the last few weeks of the year. At the outset of 1913 this oil was held at $6.50@7, but was offered at $6.40@6.75 and later at $6.35@6.75, and then at $6.30@6.75 in February. A further reduction to $6.20@6.25 occurred in March and another lowering to a basis of $6@6.25 took place in April. Further recessions to $5.90@6.25 and to $5.60@5.75 were recorded in June, and in the following month the quotation was dropped to $5.50@5.75, only to be raised to $5.75@6 before the beginning of August. At the outset of October prices were advanced to $6@6.50 and later in that month to $6.25@6.50, at which levels the quotation was maintained until December, when it was lowered again to $6.15@6.50 and finally to $6.10@6.50. Shortly after the turn of the year prices were reduced further until they were squarely upon a $6 basis again.

A monthly summary of high and low prices during the last four years follow:—

BERGAMOT OIL.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.....	3.75	3.65	3.85	3.75	6.00	5.50	6.50	6.50
Feb.....	4.00	3.75	3.80	3.75	7.00	6.25	6.40	6.30
March...	3.87	3.87	3.80	3.75	6.90	6.90	6.25	6.20
April....	3.85	3.70	3.75	3.75	6.75	6.65	6.10	6.00
May.....	3.70	3.65	4.10	3.75	6.65	6.50	6.00	6.00
June.....	3.65	3.65	4.25	4.10	6.40	6.25	5.90	5.60
July.....	3.65	3.50	4.60	4.25	6.40	6.25	5.75	5.50
Aug.....	3.50	3.50	4.60	4.60	6.40	6.25	5.75	5.75
Sept.....	3.50	3.50	4.75	4.60	6.40	6.25	5.75	5.75
Oct.....	3.50	3.50	4.85	4.75	6.25	6.25	6.25	6.00
Nov.....	3.75	3.50	5.50	5.25	6.50	6.35	6.25	6.25
Dec.....	3.85	3.75	5.50	5.50	6.50	6.50	6.15	6.10
Year....	4.00	3.65	5.50	3.75	7.00	5.50	6.50	5.50

Cassia.

No material changes in the prices asked for this oil were recorded in 1913 and, although some stiffening of both primary and local markets occurred in February and June, the quotation at the end of the twelvemonth was substantially that noted at the outset of the year. The local market opened at 82½@85c., advanced to 83@85c. In the following month, reacted to 82½@85c. in March and advanced to 85c. in June, remaining stationary at that level during the five succeeding months. In December, however, a recession occurred to 82½@85c. and this quotation remained in force up to the close of the year.

Lemon.

A noteworthy curtailment of the 1913 yield of this Messina essence and a resultant shortage of supplies at a time when speculative activities for a rise had made it difficult for many operators in the Sicilian markets to cover their short commitments and make the necessary deliveries on their contracts caused a sensational advance in the primary centers for this oil as well as in the local marke, which carried prices to the highest levels ever reached. At the very outset of the year, the Messina, Palermo and Catania markets manifested considerable excitement, in consequence of the financial embarrassment of one big house and the scrambling of numerous shorts to cover. From $2.20@2.25, the prices asked here for this were therefore marked up sharply to $3.15@3.37½., as to brand, before the end of January, and, although a reaction from these figures occurred in ehe succeeding month, as the January deliveries were completed in the primary centers and arrivals here became larger, the downward movement, thus begun, was halted abruptly after the quotation had reached $2.85@3 and in April prices asked for the leading brands were restored to $3@3.15 and were later advanced to $3.10@3.15. In May another flurry occurred in the Sicilian markets, as many operators who had sold heavily short found themselves unable to make the necessary deliveries because of an acute shortage of stocks. Prices in the primary centers were marked up to $3.60@3.70 and finally to $4.75 in July, while in the local market, a $3.25 basis quickly gave way to a $3.50 level and the latter was speedily changed to a $4 basis, then to $4.25, $4.50, $4.65 and at length $4.75 for most brands, while one well-known brand was strongly held at $5. In September, local importers quoted the various brands at $4@4.50 and early in October, they were asking $4@4.25. From this level, however, there was a noteworthy recession to $2.90, despite the imposition of a 10 per cent. import duty, due to a cessation of speculative operations for a rise in Sicily and a senasonable diminution in the buying movement on the part of foreign consumers, so that at the close of the year the quotation was $2.90@3.15, as to brand.

The summary of high and low quotations for lemon for each month during the last four years follows:—

LEMON OIL.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.....	77½	75	85	80	1.40	1.30	3.15	2.20
Feb.....	77½	77½	95	85	1.55	1.40	3.00	2.75
Mar.....	81½	77½	90	85	1.70	1.60	2.90	2.85
Apr.....	82½	77½	1.00	90	1.55	1.50	3.10	2.85
May.....	80	77½	1.17½	1.15	1.50	1.50	3.25	3.10
June.....	80	77½	1.25	1.17½	1.60	1.50	4.65	3.50
July.....	80	77½	1.45	1.60	1.60	1.50	4.75	4.65
Aug.....	77½	77½	1.50	1.45	1.60	1.50	4.65	4.40
Sept.....	80	77½	1.65	1.50	1.60	1.50	4.00	4.00
Oct.....	80	77½	1.65	1.60	2.00	2.00	4.00	3.60
Nov.....	80	77½	1.60	1.45	2.05	2.05	3.50	3.50
Dec.....	80	77½	1.45	1.40	2.10	2.10	3.15	2.80
Year....	82½	75	1.65	80	2.10	1.30	4.75	2.20

A record of high and low prices by years from 1900 to 1909 follows:—

	H.	L.		H.	L.
1900.....	1.00	75	1905.....	57½	55
1901.....	1.15	80	1906.....	1.20	57
1902.....	80	65	1907.....	2.00	1.00
1903.....	70	55	1908.....	1.50	70
1904.....	55	50	1909.....	3.00	72½

Orange.

Though by no means as sensational as the wild uplift in lemon oil prices, the upward movement which occurred in this Messina essence in 1913 was almost as interesting as that in the first-mentioned article and was based upon almost identical factors in the situation, including a material shortage in the yield, extensive operations in the Sicilian markets for a rise and a "squeezing" of the shorts as settlement day was reached at the close of several of the months. As the import duty assessed on orange oil was lowered to 10 per cent. ad valorem, however, and as the demand for this oil slackened greatly with the approach of the year-end, prices receded heavily from the high levels reached when speculative activities were at their height. Most importers of this Messina essence quoted the various brands at $2.65@2.85 at the outset of 1913, but advanced their prices immediately thereafter until they had elevated them to $3.90@4 in August and to $4@4.25 in October. From that level, there was a recession to $3.75@4 before the end of October and a further drop to $3.50@3.75 in November, with a concluding reaction to $3.10@3.25 at the close of the year. Since the beginning of 1914, moreover, there have been further recessions which have brought the prices asked for this oil to $2.75@2.80.

Peppermint.

Although the 1912 crop of the American oil proved of average proportions, a shortage of supplies was recorded both in primary markets of the central West and Northwest and also in the local market at the outset of the summer months, because of a constantly growing consuming demand, and, despite a moderate replenishing of spot stocks with 1913 yield goods, prices failed to recede to the levels reached at the beginning of the year. Opening quotations for this oil in bulk were $2.75@2.85, but from these figures there was an uplift to $2.85@3 early in February and a sharp marking up of prices which led to the naming of $3.85@3.90 at the close of September. A subsequent reaction occurred in October to $3.70@3.80, with a seasonable falling off in the buying movement, and a further recession to $3.60@3.80 took place in December. In bottles, the only brand prepared for market in these containers opened the year at $3.35@40, dropped to $3.30@3.40 in February, recovered to $3.35@3.50 in August, and then advanced to $3.40@3.50 before the close of that month and continued to move upward until $4.10@4.20 were reached at the close of September. In October, the quotation was readjusted at $3.90@4 and remained at these figures throughout the remainder of the year. High and low for bulk peppermint for the last four years are summarized as follows:—

PEPPERMINT OIL.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan....	2.00	2.00	2.45	2.25	2.85	2.85	2.85	2.75
Feb....	2.00	2.00	2.85	2.45	2.85	2.85	2.85	2.85
March..	2.00	1.95	2.90	2.80	2.85	2.85	2.85	2.85
April...	1.95	1.90	2.90	2.85	2.85	2.85	2.85	2.85
May....	1.90	1.85	2.85	2.65	2.85	2.85	2.85	2.85
June....	1.85	1.85	2.70	2.65	2.80	2.75	2.85	2.85
July....	1.85	1.80	2.85	2.70	2.80	2.75	2.85	2.85
Aug....	2.05	1.80	2.90	2.85	2.80	2.75	2.95	2.85
Sept....	2.20	2.15	2.90	2.85	2.80	2.75	3.30	3.10
Oct.....	2.25	2.20	2.90	2.87	2.85	2.85	3.85	3.65
Nov.....	2.20	2.15	2.87	2.85	2.80	2.80	3.70	3.70
Dec.....	2.25	2.15	2.85	2.85	2.80	2.80	3.80	3.60
Year....	2.25	1.80	2.90	2.25	2.85	2.75	3.85	2.75

	H.	L.		H.	L.
1894.....	2.45	2.15	1902.....	4.75	1.70
1895.....	2.45	1.40	1903.....	4.75	2.20
1896.....	1.85	1.50	1904.....	3.75	2.65
1897.....	1.70	1.20	1905.....	3.45	2.25
1898.....	1.40	.90	1906.....	3.00	2.25
1899.....	.90	.80	1907.....	2.35	1.55
1900.....	1.10	.80	1908.....	1.65	1.40
1901.....	1.80	1.10	1909.....	2.00	1.45

Spearmint.

Until the replenishing of almost exhausted spot stocks with the goods from a new crop of fair proportions, this oil was held at the abnormally high levels of $4.85@5 but, following liberal arrivals of the new crop oil, prices were marked down from these figures to $4.60@4.75, then to $4.25@4.50 and at length to $4@4.25, and finally to $4 at the close of the year. A summary of high and low prices during the last three years follow:—

SPEARMINT OIL.

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January 2.85	2.75	4.35	4.35	4.85	4.85	
February 3.00	2.85	4.35	4.35	4.85	4.85	
March.....	3.15	3.00	4.35	4.35	4.85	4.85
April 3.15	3.00	4.35	4.35	4.85	4.85	
May 3.00	3.00	4.50	4.50	4.85	4.75	
June 3.00	3.00	4.70	4.50	4.85	4.75	
July 3.10	3.00	4.70	4.50	4.75	4.60	
August 3.75	3.10	4.70	4.50	4.60	4.00	
September ...4.00	3.75	4.70	4.50	4.00	4.00	
October 4.25	4.00	4.75	4.75	4.00	4.00	
November ...4.25	4.25	4.85	4.85	4.00	4.00	
December ...4.35	4.25	4.85	4.85	4.00	4.00	
Year 4.35	2.75	4.85	4.35	4.85	4.00	

FLOWERS.

Saffron.

American flowers, which are of Mexican origin, were in such scanty supply in the local market in 1913 as to bring about a sharp uplift of prices for them from 33@35c. to 47@50c. about the middle of March, when the demand for them, for use in the treatment of scarlet fever and measles became most urgent and when it had become very difficult to replenish the meager spot supplies in the country of production, because of a continuance of revolutionary activities there. From this comparatively high level, however, prices were marked down to 30@32c. at the outset of July but were speedily marked up again, in anticipation of the imposition of 10 per cent. ad valorem. In consequence of this expectation, subsequently realized, prices for these flowers were advanced sharply to 70@75c., but from these figures, there was a recession to 45@55c. during the remainder of the year. The Valencia or Spanish flowers were held at the extraordinarily high levels of $12.75@13 until the middle of February, when they were lowered, under keen competition to $12.60@13. In March, April and May, they were maintained at $12.75@13, as supplies continued very light, but about the middle of June, they were marked down to $12@12.75 and at the outset of August to $11.85@12.50. Thereafter there was a recovery to $12@12.50 but in December, when the new crop offerings proved beyond a doubt that the 1913 crop had been of at least customary proportions, prices were shaded to $11.75@12 and at length to $11.50@11.75. Even assessment of these flowers in pound containers at an advalorem rate of 20 per cent., under the provisions of the first part of paragraph 17 of the new tariff law failed to cause an uplift from these figures and, when such assessment ceased, recently, in response to a decision by the United States Treasury Department, prices were lowered to $11@11.50. The following table shows the fluctuations each month during the past five years:—

SAFFRON FLOWERS, AMERICAN.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan....	23	23	55	32	19	18	45	33	33	33
Feb....	23	23	32	30	25	20	45	33	33	33
March	23	23	30	27	25	24	45	40	47	37
April..	23	23	30	30	23½	21	45	38	45	43
May....	23	23	30	25	22½	21	40	38	40	40
June..	22	22	27	25	22½	22½	40	36	40	30
July....	22	22	21	21	22½	22½	38	36	34	30
Aug....	22	22	21	21	22½	22	38	36	70	69
Sept..	22	22	21	19	25	22	38	36	65	65
Oct....	22	20	20	19	30	27	35	34½	60	55
Nov..	35	28	20	20	30	30	24	33	45	45
Dec..	35	35	20	18	33	30	33	33	50	45
Year..	35	20	55	18	33	18	45	33	70	30

MEDICINAL AND OTHER GUMS.

Aloes.

Steadily augmented offerings of Curacoa aloes in cases and gourds during 1913 brought about a noteworthy lowering of prices for this gum which carried prices downward from 11 at 11½c. to 6½@7c. about the middle of June. From this relatively low level, however, there was a recovery to 7@7½c. and later to 8@8½c., at which figures this gum was still offered at the end of the year. In gourds, this gum was held at 11½@12c. in January and February but about the middle of March, the quotation was lowered to 10@11c. and early in June it was lowered further to 8@9c. A slight recovery at the close of the year, however, brought asking figures back to 9½@10c. True barbadoes aloes were similarly reduced from $1.45@1.50, recorded at the outset of the year and for the two succeeding months, to $1.25. Cape aloes, however, were advanced on a growing scarcity and an increasing demand from 9@10c. to 10c. all. During the second half of January and in the three succeeding months, this gum was offered as low as 8½@9c. but in May it was marked up to 10@11c. and, although reduced to 9½@11c. at the close of July, was restored to 10@11c. about the middle of October. The following shows the prevailing high and low prices each month during the last five years:—

CURACAO ALOES, IN CASES.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan..	7	7	7	6¾	7	6½	7¾	7¾	11	10½
Feb..	7	7	7¼	7	7	6½	8	8	10	10
Mar..	7	7	8	7¼	7	7	8	8	10	9½
Apr..	6¾	6¾	8¼	8	7	7	9½	8¼	9	8½
May..	6¾	6¾	8¾	8¼	7	6¾	9½	8¼	9	8½
June..	6¾	6¾	8½	7¼	6¾	6¾	10	10	8½	6¾
July..	6¾	6½	7¾	7½	7	6¾	10	10	7	7
Aug..	6½	6¾	7½	7½	7	7	10	10	8	8
Sept..	6¾	6¾	7½	7½	8	7	10	10	8	8
Oct..	6¾	6¾	7½	7½	7½	7¼	11½	11½	8	8
Nov..	6¾	6¾	7½	7½	7½	7¼	11½	11½	8	8
Dec..	6¾	6¾	7	7	7½	7½	11½	11	8	8
Year .7		6½	8¾	6¾	8	6½	11½	7¾	11	6½

Camphor.

Of foremost importance in the market for the refined gum were the changes in the tariff law, imposing an import duty of a cent upon the crude gum, hitherto on the free list, and lowering the duty for the refined gum from 6 cents to 5 cents per pound, which placed a handicap of 2c upon the American refined product, which action was followed closely by a complete reversal of conditions resulting from a temporary assessment of importations of the foreign refined gum in slabs and tablets weighing only two and a half pounds or less, under the provisions of the second part of paragraph 17 of the new tariff law. This assessment at the abnormally high rate of 20 per cent. was halted recently, however, by a decision of the United States Treasury Department exempting camphor and naphthaline balls from the provisions of that paragraph. In price changes, the only important revision made by the American refiners was the lowering of their prices from a bulk basis of 44c. to one of 42½c. in barrels, which was effected in order to meet the increasing competition of the Japanese refiners and importers of the Japanese gum. American refiners have suffered little to date from the imposition of an import duty of a cent per pound upon the crude gum, as they have generally stocked up heavily enough with the crude material to meet all their requirements for some time to come.

Comparative prices for refined camphor in bulk, by months, are shown in the following summary, covering a period of five years:—

AMERICAN REFINED CAMPHOR.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan.....	50	48	45	45	42	42	44	44	44	44
Feb.....	48	48	45	45	44	43	44	44	42½	42½
March...	48	48	45	45	49½	44	44	44	42½	42½
April....	48	48	45	45	49½	49½	44	44	42½	42½
May.....	48	48	45	45	49½	49½	44	44	42½	42½
June.....	48	48	45	45	49½	48½	44	44	42½	42½
July.....	48	48	45	45	46½	45	44	44	42½	42½
Aug.....	48	46	45	45	45	45	44	44	42½	42½
Sept.....	46	46	45	45	45	45	44	44	42½	42½
Oct.....	46	45	45	45	44½	44½	44	44	42½	42½
Nov.....	45	45	45	42	44½	44½	44	44	42½	42½
Dec.....	45	45	42	42	44½	44½	44	44	42½	42½
Year....	50	45	45	42	49½	42	44	44	44	42½

HERBS AND LEAVES.

Buchu.

Despite the imposition of an American import duty of 10c. and a prospective raising of the British colonial export tax, subsequently realized, from 2s. 6d. to 3s., local importers of the short leaves lowered their prices throughout 1913 from $1.50@1.60 to $1.25@1.30, under a moderate accumulation of stocks here, due to a noteworthy falling off in the demand. Long leaves were similarly offered down from $1.50@1.60, at which they began the year, to $1.25@1.30. At the close of the year, however, a growing scarcity of the short leaves brought about a slight uplift to $1.30@1.35. High and low prices for short buchu for the last three years follow:—

BUCHU, SHORT.

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January	90	75	1.00	95	1.50	1.40
February	1.25	1.00	1.25	1.10	1.50	1.40
March	1.20	95	1.20	1.20	1.50	1.45
April	1.00	90	1.20	1.15	1.50	1.45
May	1.10	1.10	1.45	1.20	1.40	1.40
June	1.10	1.10	1.45	1.45	1.45	1.40
July	1.10	1.10	1.45	1.45	1.42	1.38
August	1.10	1.10	1.45	1.45	1.37	1.35
September ...	1.15	1.06	1.45	1.45	1.30	1.30
October	1.10	90	1.65	1.65	1.30	1.25
November ...	95	90	1.60	1.60	1.30	1.30
December ...	1.00	95	1.50	1.50	1.30	1.25
Year	1.25	75	1.65	95	1.50	1.25

ROOTS.

Golden Seal.

Despite the continued manufacture of synthetic hydrastis, which, it was originally feared in some quarters of

the producing trade would tend to curtail consumption of this root, prices asked for the natural product were advanced during the greater part of the year. Opening at $4@4.25, as to quality, the quotation for this root was lowered to $3.90@4, under keen competition, toward the end of June, but was restored to $4@4.10 at the outset of August and marked up to $5@5.10 in November, when spot stocks proved inadequate to meet current requirements. From this level, however, there was a slight recession, which carried prices off to $4.90@5, at the close of the year. The spring dug root yield reached average proportions, but the fall and winter-dug yield was relatively light. High and low prices each month, together with those of corresponding periods in the two years previous, are shown in the following summary:—

GOLDEN SEAL ROOT.

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January	2.75	2.65	4.75	4.60	4.00	4.00
February	2.70	2.70	4.85	4.85	4.00	4.00
March	3.00	2.70	5.00	5.00	4.00	4.00
April	3.00	2.90	5.25	5.00	4.00	4.00
May	3.25	3.00	5.25	5.25	4.00	4.00
June	3.50	3.25*	5.25	5.00	4.00	3.90
July	3.50	3.25*	5.25	5.00	3.90	3.90
August	4.25	4.00	5.25	5.00	4.00	4.00
September	5.00	4.25	5.25	5.00	4.75	4.15
October	5.50	5.25	4.50	4.50	4.90	4.90
November	5.25	5.00	4.25	4.25	5.00	5.00
December	5.00	4.75	4.00	4.00	4.90	4.90
Year	5.50	2.65	5.25	4.00	5.00	3.90

*Spring root.

Ipecac.

Although more liberal offerings of the Cartagena root and a noteworthy falling off in the demand for this variety brought about a drop in prices from $2.20@2.25 to $1.75@1.85 in the second month of 1913 and caused the market to close at $1.80@1.85 for this description, a scarcity of the root was noted at the outset of the year and was relieved but little throughout the twelvemonth so that there was little recession from the relatively high figures of $2.20@2.25 reached at the beginning of the year. A low level was struck, however, at $1.85 and from this figure there was a recovery to $2@2.10 in March and a further uplift to $2.10 occurred at the close of August. This last mentioned figure continued in force until December, when the local market became bare of the root. A summary of high and low prices by months for Cartagena follows:—

IPECAC, CARTAGENA.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	1.65	.95	2.00	2.00	2.30	2.10	2.20	1.80
Feb.	1.10	1.05	1.90	1.80	1.90	1.80	1.75	1.75
March	1.50	1.10	1.80	1.80	1.45	1.45	1.95	1.90
April	1.75	1.40	1.80	1.75	1.95	1.50	1.90	1.90
May	1.50	1.40	1.80	1.75	2.00	1.95	1.90	1.90
June	1.25	1.15	1.85	1.80	1.90	1.90	1.90	1.90
July	1.25	1.25	1.85	1.85	1.85	1.85	1.90	1.90
Aug.	1.40	1.25	2.10	1.85	1.85	1.85	1.85	1.80
Sept.	1.45	1.30	2.20	2.15	1.85	1.85	1.95	1.85
Oct.	1.50	1.45	2.25	2.20	1.85	1.85	1.85	1.85
Nov.	1.80	1.50	2.30	2.25	2.35	2.30	1.85	1.85
Dec.	2.00	1.95	2.30	2.30	2.30	2.30	1.80	1.80
Year	2.00	.95	2.30	1.75	2.35	1.45	2.20	1.75

Jalap.

A noteworthy lowering of prices for this root occurred in 1913, in consequence of a steadily falling off in the demand for this article from manufacturers of galenicals and pharmaceutical preparations in which it is used, who had generally stocked up so heavily within the previous year as to obviate buying additional lots last year. From 22@23c., at which it was quoted at the outset of the year, this commodity was offered down to 15c. in August and to 14c. toward the end of September. In November, some lots were offered by local holders as low as 13c. and, at the close of the year, the quotation was 13@20c., according to quality and quantity.

JALAP

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
January	35	30	25	22	26	25	22	22
February	30	25	22	22	24	24	22	22
March	28	18	30	25	22	22	22	21
April	18	17	37½	35	22	22	21	21
May	30	19	35	32	25	22	21	21
June	35	30	32	30	23½	23½	21	20
July	37½	35	30	30	23½	23½	20	18
August	38	37	30	30	23½	23½	15	15
September	45	41	35	30	23½	23½	16	14
October	45	42	33	33	24	24	15	14
November	42	35	33	32	24	22	13	13
December	30	25	32	26	22	22	13	13
Year	45	17	40	22	26	22	23	13

Sarsaparilla.

Continuance of revolutionary activities in the country of production made it so difficult to replenish spot stocks of the Mexican root in the primary markets that local holders were compelled to raise their prices sharply in the last five months of 1913, as supplies here became depleted. From 15½@16c., the quotation for this root was lowered to 14½@15c. in January, but was restored to 15c. and then to 15½@16c. in February. It was not until the middle of April that prices were lowered again, this time, however, to 14@14½c., as spot stocks appeared temporarily adequate for current needs. There followed, however, a sharp uplift to 15@17c., then to 16@17c., and at length to 18@19c. and 24@25c. by the end of November. In December, two additional advances carried prices up to 25@26c. and finally to 28@30c., with little available even at these levels. The imposition of an import duty of 1c. per pound was without appreciable effect. Honduras root was strongly held throughout the year at 42@44c. The high and low quotations each month during the last few years are shown in the following summary:—

SARSAPARILLA, MEXICAN.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	8	8	9	9	9	9	19	18	15½	14½
Feb.	8	8	9	9	9½	9	17	17	15½	15
Mar.	8	8	10	10	9½	9½	14	14	15½	15½
Apr.	8	8	10	9	18	10½	13	11	15½	14
May	8	8	9	8½	18	17	11	11	14	14
June	8	8½	8½	8½	18	17	14	11	16	15
July	8	8	11	8½	17	15	13	13	16	16
Aug.	8½	8	10½	10	15	14	13	13	16	16
Sept.	9½	8½	10	10	14½	14	15	15	17	16
Oct.	9½	9½	10	10	16	15	15	15	18	17
Nov.	9½	9½	10	10	15½	15	16	16	24	18
Dec.	9	9	10	10	18½	15½	16	15½	28	25
Year	9½	8	11	8½	18½	9	19	11	28	14

Senega.

As spot stocks of both southern and northern root were scanty throughout the year and those of the first-named description finally were exhausted, materially higher prices were named for both during the first nine months of the year and, for the latter variety, closing quotations were still considerably above those at which it was offered at the outset of the twelvemonth. Southern root was available at the beginning of last year at 63@65c. but, after being quoted at these figures for three months, it was held at 68@70c. in April and during the first half of May. Late in May, the quotation was advanced to 70c. and in June and July, local holders declined to sell for less than 80c. as supplies here became depleted and it was impossible to replenish them from stocks in the country. For a few weeks in late August and September, spot stocks were maintained at 75@80c. but toward the end of the latter month supplies were completely exhausted and only a nominal quotation was made. The Northern root, like the Southern variety, was offered at 63@65c. early in the year but was jumped up to 70c. toward the end of May and to 80c. in the following month. In August, the quotation for this root was lowered to 70c. and in September to 67@68c. A further reduction in October brought asking prices down to 66@68c. and local holders continued to offer their stocks at these figures throughout the remainder of the year.

SENEGA.

	1909.		1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	43	43	60	60	43	42	60	59	63	63
Feb.	43	43	60	56	43	43	60	59	63	63
Mar.	43	43	56	56	43	43	60	59	63	63
Apr.	43	43	56	55	43	43	65	62	68	68
May	43	43	55	55	42	42	65	65	70	68
Year	60	40	60	43	60	42	65	59	80	63
June	43	43	55	50	42	42	65	65	80	80
July	43	42	47½	47	52½	42	65	65	80	80
Aug.	41	40	47	47	55	52½	65	65	75	75
Sept.	42	41	47	47	55	55	62	62	75	75
Oct.	55	50	45	44	58	55	62	62	Nom.	
Nov.	60	55	44	44	58	58	63	63	Nom.	
Dec.	60	60	44	43	60	58	63	63	Nom.	
Year.	60	40	60	43	60	42	65	59	80	63

SEEDS.

Caraway.

A sharp upward movement in prices asked for this seed was recorded in 1913, in consequence of steadily diminishing supplies here and the difficulties experienced in attempting to replenish them with stocks from the new crop in Holland, which was greatly curtailed. At the outset of the year, this seed was offered at 6¾@7c. and, after being offered down to 5¾@6¼c. in June, prices were advanced sharply until a quotation of 7¼@7½c. was reached in October. Thereafter there was a recession to 7@7¼c. in November and, after a rally to 7¼@7¾c., the market closed at 7@7¼c. A steadily increasing demand was noted for this seed. A summary of high and low prices each month during the last four years is shown in the following table:—

CARAWAY SEED.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	6½	6½	5½	5½	5¾	5¾	6¾	6¾
Feb.	6½	6½	5½	5½	6	6	6¾	6½
Mar.	6½	6½	5½	5½	7	7	6½	6¼
April	6½	6½	5½	5¼	8	6¾	6¼	6¼
May	6½	6½	5¾	5¼	8	7½	6¼	6¼
June	6½	6½	5¾	5¾	7¾	7¾	6	5¾
July	6½	6½	5¼	5	7¾	7¾	6¼	5¾
Aug.	6½	6¼	5½	5	7¾	7¾	6¾	6¼
Sept.	6¼	6	5½	5½	7¾	7¾	6¾	6¼
Oct.	6	5¾	6½	5½	7¼	7¼	7¼	6¾
Nov.	5¾	5½	6¼	6	6¾	6¾	7	7
Dec.	5½	5½	5¾	5¾	6¾	6¾	7½	7
Year	6½	5½	6½	5	8	5¾	7¼	5¾

Celery.

Fluctuations, almost as wild as those which characterized its market in 1912, were reported in the prices asked for this seed in 1913 as a result of another noteworthy scarcity of stocks during the period immediately preceding the buying movement of the canning and packing trade and condiment makers and a subsequent replenishing of spot stocks with arrivals from Marseilles which was followed, in turn, by another depletion of supplies here and abroad. Opening the year at the relatively high levels of 25@26c. this seed was advanced by leaps and bounds to 45@47c. in March, when stocks were reduced close to the vanishing point and it became increasingly difficult to obtain any of the seed in the primary center. From this high level of the year, however, there was a sharp recession which carried prices off to 33@34c. at the close of August, when the pickling trade began its annual purchasing operations, and from that level, there was a further recession to 12@13c. toward the end of October, when the demand from this quarter had ceased. In November, prices were rallied to 16@18c., but in December, they fell back to 15@15½c. and, although they were advanced again to 15½@16c., they receded to 15¼@15c. at the close of the twelvemonth.

High and low quotations for the last three years by monthly comparisons follow:—

CELERY SEED.

	1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.
January	17½	16½	15	15	30	25
February	16½	16½	16½	15½	40	33
March	17	16½	28	28	45	42
April	17	14	26	25	42½	40
May	15	14	30	25	41	40
June	15	14	30	30	39	38
July	13½	12	30	30	37½	37
August	12½	12	30	30	35	33
September	25	22	30	30	32	15
October	23	20	25	24	12½	12
November	20	18	24	24	16	16
December	18	17	25	25	15½	15
Year	25	12	30	15	45	12

SPICES.

Cloves.

A material marking down of prices for all descriptions of this crude spice occurred in 1913, as a sequel to the gathering of exceptionally large crops in the countries of production. The downward movement, however, was rather gradual, but none the less almost uninterrupted. At the beginning of the year, the Zanzibar description was very strongly held at 21½@22c., in view of a noteworthy shortage of spot stocks and the bareness of both primary and European markets. From this level, there was a dip to 21½c. early in February, but there followed in April, a climb to 22@23c. Then ensued the continuous decline which carried prices off to 15@15¼c. at the close of the year. Following is a summary of the highest and lowest points reached during each of the last twenty-eight years:—

	High.	Low.		High.	Low.
1913	21½	15	1899	8	6¼
1912	20½	10⅝	1898	8¾	5⅝
1911	19	12	1897	6¼	4⅜
1910	13½	10	1896	5½	4
1909	11½	9½	1895	6½	4
1908	12	10	1894	7	4⅛
1907	18½	14	1893	10	4¾
1906	15	13	1892	8	5
1905	14½	8⅞	1891	9½	6½
1904	19	13	1890	10	7¾
1903	10½	7½	1889	11½	10¾
1902	9	8	1888	23	13
1901	9½	7 3-16	1887	27	20
1900	9	6¾	1886	27	12¾

Shellac.

Shellac has been an economical conundrum during a good part of 1913. Seldom have its many phases been subjected to such battling and rampant twists and turns as have enlivened the year's developments. Although a net appreciation of a little more than one and three-quarters per cent. has been scored in the general market over the period, the results have on the whole proved disappointing, and the failure to realize the ends upon which the trade had centered such confidence has constituted one of the most perplexing situations of late years. The banner development of 1913 was the bullish spurt toward the close of summer, crystalizing in a level that marked high records in the leading quarters in about five years and fostering the hopes of the trade that the coveted additional improvement was within reasonable approximation. Instead, however, came a reaction which in the final four months re-established a basis in effect nearly ten months previously. It was during the setback that the market displayed its most erratic tendencies, apparently breaking loose from every economic mooring of which more detailed particulars will be given in proper sequence.

As a basis for systematic treatment of the general shellac situation last year, we shall trace the course of T. N. in bags. Opening at 16½c. in January, it early manifested a bullish movement on the stirring Calcutta developments, the primary market touching at 17c., the highest point in three years. Good buying was stimulated for the local trade at the advancing trend of values. The strengthening course abroad was emphasized during February, with advices of a shortage in the bysackie crop, one of the important events of the year, contributing sharply to the uplift. Calcutta was reported to have scored the high level in five years, with a good buying movement a supporting factor. On spot T. N. commanded 21c. Toward the end of February came a reaction in the primary position, the effect of which was accentuated by the financial embarrassment of a leading local house, the month closing with a decline to 20½c. After a brief see-sawing of the Calcutta market early in March, the foreign position developed a more positive bearish tendency, the financial tightness in Europe prompting a sharper realization campaign. The liquidation of distressed spot stock was not calculated to improve the local market and a 19c. basis was in effect. A steadying influence was imparted late in March on the more definite indications of the bysackie shortage and reports of a threatened yield of the finished product in the Mirzapore district by plague. The improving tendency was short-lived and between liquidation pressure on spot and the easing course of Calcutta there was an unchecked recession in local values to 17c. early in May. Then came another of the spasmodic primary turns, based on reduced sticklac output, which at that time was placed at about 100,000 packages, or approximately five-eighths of an average yield. New York was able to shake off a measure of the peculiar forces which had operated to discredit, but the unusual sharpness of competition checked a full response to the Calcutta enhancement and on the June flurry local dealers had to be content with a 21½c. market. There was comparatively little of shaping significance until August, when the stirring development of the year was inaugurated. The early tenders of November-December shipment, upon which the local trade was more or less dependent for the first arrivals of free goods, came at a relatively high level, outstripping the spot parity, with London rallying to the occasion. The tone of the general situation was strengthened by the poor prospects for the koosmie crop, from which the fine orange marks are made. Early in September the high level of the year was reached at 23½c. for T. N. The primary spurt was again of a fleeting character, but the reaction was attributed to jockeying shipment practices rather than to any abatement of inherent soundness. Six months' receipts of lac in the manufacturing districts amounted to 6,744 tons, as against 9,440 tons for the previous six months, the difference being equivalent to about 37,000 packages. London developed a keen bearish tendency during September under rampant speculative proclivities. The local market yielded to the disparaging influences by ½c. decline at the close of the month. Financial conditions in October operated with more direct effect upon the foreign shellac markets. Of principal bearing was the five per cent. advance in the Bank of England rates, lending a financial quickening to speculative realizations in London. Calcutta seemed to be in close sympathy and was experiencing its own share of financial difficulties, although they were not directly associated with the shellac industry. Selling pressure proved an important factor in the easing course of the foreign markets, although crop reports were persistently unfavorable. Spot prices were on the basis of 21½c. at the close of October. A continued reaction abroad marked the November developments, but the contributing conditions became almost hopelessly involved, and the erratic fluctuations baffled reasonable analysis. In the local market T. N. went to 20½c. Forced December liquidation operated as a weakening London factor early in the closing month, with Calcutta in easy reflection. There was more of a disposition on the part of local dealers to cover at the lower primary level, and as the month advanced a better tone characterized the foreign situation and the effect of financial disturbances was partly mitigated. There was no suggestion of improvement to the local market and the closing weeks of the year seemed to lend new intensity to competitive selling, establishing the final basis at 19½c., a repetition of the early March figure.

A comparison of monthly values for T. N. during the last four years and of the high and low limits touched during the previous nine years is afforded by the following table, the basis being for bags, cases generally commanding a ½c. premium:—

T. N. IN BAGS

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	15½	15	18	15	14	14	18	16½
Feb.	15	14¼	15½	14	14	13¾	20½	18½
March	14½	14½	16	15½	14	14	20	19
April	14½	14	15½	14¾	14¼	14	19	17½
May	15½	14	15	14½	14¼	14	18½	17
June	15¾	15¼	15	14½	14	13½	21½	20
July	18½	15¾	14	14	13¾	13½	21½	21½
Aug.	18	18	14	14	14	13¾	23	21½
Sept.	18	17½	14	14	16	14¼	23½	23
Oct.	19	17	14	14	16½	16	22	21½
Nov.	19½	19	14	13½	16½	16	21	20½
Dec.	18½	18	13¾	13½	16	16	20	19½
Year	19½	14	18	13½	16½	13½	23½	16½

	High.	Low.		High.	Low.
1909	20½	14	1905	46	42
1908	29	20	1904	52	42
1907	48	26	1903	52¾	26½
1906	50	42	1902	30	24

The market for bleached shellac has been subjected to probably more disparaging influences than have characterized the T. N. situation during the year, and one factor stands in particularly bold relief in the 1913 bleached developments, namely the unusual sharpness of local competition, which has been the means frequently of keeping prices below proportionate basis of T. N. Opening quotations for bleached were 16c. for commercial and 21c. for bone dry. On the Calcutta flurry in January and February the spot market responded to 20½c. and 25½c., respectively. No further change was noted until April, when easier conditions abroad and in the local market occasioned a reaction in bleached, and the decline was unchecked until early in May, by which time 17c. for commercial and 22c. for bone dry were named. Later in May there was an upward movement in the foreign markets, and steady advances were made in bleached to 21c. and 26c. by the middle of June, although competition still tended to prevent the full reflection of primary improvement. In August another spurt in Calcutta established bleached quotations at the high level of the year, 22c. for commercial and 27c. for bone dry. Some holders maintained 23c. and 28c. as more representative of the basic market. With the reactionary course of Calcutta and London over, the last four months of the year the spot tendency of bleached prices was in close sympathy, competition being stimulated to particular keenness. At the close commercial was

quoted at the T. N. equivalent of 19½c., while bone dry was available at 24½c.

The record of high and low prices for bleached by months last year follows:—

BLEACHED.

	Commercial-		Bone dry-	
	High.	Low.	High.	Low.
January	18	16	23	21
February	20½	19	25½	24
March	20½	20½	25½	25½
April	20	18	25	23
May	18	17	23	22
June	21	19½	28	24½
July	21	21	26	26
August	22	22	27	27
September	22	21½	27	26½
October	21	20½	26	25½
November	20½	20	25½	25
December	20	19½	25	24½
Year	22	19	27	24

The fine orange marks have maintained a relatively stronger position during the year than have the ordinary orange descriptions, as the primary market for the former has been under better control, with comparatively slight selling pressure. D. C. opened at 21c. and rose to 28c. on the bullish trend of Calcutta late in February. Early in March came a reaction which brought the price to 25c. by May. On the recovery tendency abroad, late in May and in June, the high level of 28c. was restored. An even market prevailed until August, when a primary flurry and reports of damage to the seed crop for the koosmle lac, the basis for the fine orange mark, brought D. C. to its most favorable position of the year, 30c. Under the generally depressing influences over the last four months there was a recession to 26c. by the close.

The conditions noted in connection with D. C. have been generally true of V. S. O., and Diamond 1, and for the purposes of the year's review a reference to the course of prices will suffice. V. S. O. opened at 20½c., advanced steadily to 27c. late in February and then reacted to 24c. early in May. Toward the close of May another upward movement was in progress, the force of which was prolonged over the following three months, 29c. prevailing late in August. The following month brought a setback to 28c. and the downward course established a 25½c. basis by November, which prevailed until the close. Diamond 1, the remaining fine orange mark, opening at 20c., scored a 26c. level late in February, receded to 23c. by May, more than recovered its lost ground during the following three months, touching the high point at 28c. in August, and then declined steadily to 24c. by November.

As of further interest the course of A. C. garnet may be given as starting the year at 15¾c., advancing to 19c. in February, declining to 17½c. in April, following a bullish trend to 22c. by August, and yielding to the bearish conditions late in the year by closing at 20c.

Monthly shipments from Calcutta during the last four years are summarized as follows:—

UNITED STATES.

	1913.	1912.	1911.	1910.	1909.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
Jan....	12,500	10,900	8,500	21,500	17,800
Feb....	13,000	20,600	19,300	11,200	13,200
March..	19,600	8,600	8,800	30,600	19,000
April..	19,600	22,600	16,100	23,300	22,400
May....	9,400	15,400	9,200	28,100	16,300
June...	10,300	23,000	13,700	6,300	26,000
July...	4,900	4,800	8,700	3,700	15,200
Aug....	2,800	7,300	4,800	100	9,900
Sept...	3,600	3,700	2,800	4,300	7,400
Oct....	6,200	6,000	5,800	9,200	29,300
Nov....	17,300	15,300	18,900	12,800	34,500
Dec....	10,800	22,800	19,500	20,600	25,600
Totals.	130,300	161,000	136,500	171,700	236,000

UNITED KINGDOM.

	1913.	1912.	1911.	1910.	1909.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
Jan....	6,700	8,100	5,500	15,100	6,600
Feb....	6,800	5,800	6,200	10,300	5,200
March..	7,500	5,400	8,300	15,600	7,500
April...	4,500	3,800	5,600	13,500	7,400
May....	5,200	6,700	9,500	6,300	10,800
June...	9,700	8,600	6,600	11,400	8,900
July...	6,200	7,800	10,300	9,500	10,700
Aug....	8,700	6,000	3,300	14,300	7,700
Sept...	2,700	5,200	6,100	7,900	9,600
Oct....	3,500	6,900	7,100	10,200	11,800
Nov....	12,700	7,100	6,900	9,800	11,700
Dec....	8,900	9,100	7,800	5,600	16,100
Totals.	83,200	80,500	82,600	128,900	114,600

CONTINENT.

	1913.	1912.	1911.	1910.	1909.
	1913.	1912.	1911.	1910.	1909.
Jan....	10,100	12,500	6,900	11,500	10,700
Feb....	12,800	14,200	10,000	13,900	12,900
March..	4,100	16,400	10,300	13,400	17,100
April..	4,800	12,100	8,400	12,900	14,600
May....	5,100	12,600	15,600	9,900	16,000
June...	2,300	7,700	6,800	9,900	8,000
July...	4,000	7,100	7,100	8,600	7,400
Aug....	4,900	4,600	4,500	12,400	8,000
Sept...	4,200	6,800	8,700	5,500	9,200
Oct....	3,400	11,600	14,600	6,900	16,100
Nov....	3,900	11,000	14,000	6,900	16,100
Dec....	5,700	13,300	16,600	11,100	16,200
Totals.	65,300	131,200	125,700	125,400	145,800

Totals for the last five years follow:—

To—	1913. Cwts.	1912. Cwts.	1911. Cwts.	1910. Cwts.	1909. Cwts.
U. S..	130,300	161,000	136,500	171,700	236,000
U. K..	83,200	80,500	82,600	128,900	114,000
Cont...	65,300	131,200	125,700	125,400	145,800
Totals	278,800	372,700	344,800	426,000	426,000

Clearances of all descriptions of shellac from Calcutta in cases during recent years follow:—

Twelve months ending Dec.	United States, cases.	Continent, cases.	United Kingdom, cases.	Totals, including other countries, cases.
1913....	93,833	39,975	53,128	192,500
1912....	101,104	86,671	49,751	254,123
1911....	90,586	93,709	50,644	235,339
1910....	118,325	82,806	88,873	290,004
1909....	154,998	72,383	94,090	321,471
1908....	78,925	65,235	77,952	222,112
1907....	84,382	55,728	66,704	206,814
1906....	82,661	32,979	38,493	156,502
1905....	73,594	39,650	41,784	157,531
1904....	52,392	22,412	78,958	156,550
1903....	55,297	24,740	65,388	147,009
1902....	48,044	16,951	59,686	126,592
1901....	44,789	29,734	35,728	111,375
1900....	56,798	51,678	48,206	158,779

The following is the record of shipments of shellac from Calcutta to all parts during the shellac season (November, 1912, to October, 1913), viz.:—

	Orange, cases.	Garnet, cases.	Button, cases.	Total, cases.
United States..	92,343	6,005	150	99,398
U. Kingdom....	33,941	7,511	7,891	49,343
Continent	39,178	6,875	4,143	50,196
Hong Kong, etc.	5,643	30	381	6,054
Totals	171,105	21,321	12,565	204,991
Against—				
1911-12.....	224,369	18,640	18,700	261,709
1910-11.....	195,218	16,193	11,098	222,449
1909-10.....	279,226	19,219	20,645	319,090
1908-9.....	257,526	15,583	19,535	292,644
1907-8.....	176,392	19,249	15,297	210,938
1906-7.....	173,442	12,011	20,661	206,114
1905-6.....	127,808	14,017	17,972	159,857

WAXES.

Japan.

Although inclined to manifest some weakness in the summer period, when shipments from the country of production were being made uninterruptedly and the demand had fallen off heavily, the prices generally asked for this wax were strongly maintained throughout 1913 and closed at levels considerably above those named at the outset of the year. Local importers and other holders of this wax quoted their stocks at the beginning of the year at 9¾@10c. but offered to sell at 9⅛@9½c. at the close of May, when supplies became more liberal and the consuming demand slackened slightly. After a recovery to 9¼@9½c., the quotation was marked down further, this time to 9@9¼c. at the end of June and was held at that level until the middle of October, when supplies were again greatly reduced here and offers from Japan became more limited. The asking prices of most local holders were then raised to 9¼@9¾c. and remained at these figures until December, when they were raised sharply until they registered 10½@10¾c., as to quality and quantity. The high and low prices by months during the late years follow:—

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.....	9¾	9½	9¾	9⅝	9¼	9	9⅝	9⅜
Feb.....	9½	9	9¼	9⅛	9½	9	9⅝	9⅜
March....	8	8⅜	9¼	9¼	9¼	9¼	9⅝	9⅜
April.....	8⅜	8½	9⅜	9	9¼	9¼	9⅝	9¼
May.....	8½	8½	9	9	9¼	9¼	9¼	9¼
June.....	8¾	8½	9	9	9⅜	9¼	9¼	9
July.....	9	8⅝	9	9	9⅜	9½	2	2
Aug.....	9¼	9	9	8½	9⅜	9½	9	9
Sept.....	9¼	9	8½	8½	9¾	9½	9	9
Oct.....	9¼	9	8½	8½	10	10	9¾	9
Nov.....	9¼	9¼	8¾	8¾	9⅝	9⅝	9¼	9¼
Dec.....	9½	9	9	8¾	9⅝	9⅝	10	9⅝
Year.....	9¾	8½	9¼	8½	10	9	10½	9

Paraffine.

No price changes of consequence were made in prices for the crude wax or for either the domestic or foreign refined descriptions in 1913 but the figures asked by importers and manufacturers, alike, were generally well maintained throughout the twelvemonth and a steady consuming demand was reported at all times. Details of exports of parraffine wax by months for the last three years follow:—

	1911. Pounds.	1912. Pounds.	1913. Pounds.
January	18,676,843	19,237,336	23,125,261
February	17,345,879	19,534,586	28,266,719
March	21,563,501	21,603,474	27,548,912
April	16,482,913	25,891,720	27,385,703
May	14,952,802	31,428,727	19,822,152
June	18,036,356	24,903,584	13,681,910
July	12,778,199	25,892,809	11,852,948
August	15,880,771	29,344,491	16,175,961
September	20,818,100	24,339,344	21,274,350
October	9,128,447	24,638,787	19,006,848
November	18,302,655	25,797,982	14,818,163
December	20,082,400	22,054,871	20,054,871
Totals	214,018,337	294,590,651	242,303,778
Values	$7,047,856	$9,902,758	$8,176,851

WESTERN ESSENTIAL OILS.

Peppermint.

At the beginning of August, 1913, the peppermint fields in the West looked very poor and it was not expected that last year's crop would exceed 225,000 pounds of oil. The fields were badly spotted and large patches in them were entirely killed so that it was exceedingly difficult to form an accurate estimate of the size of the crop. These conditions were due to several severe frosts, which occurred in June and which were followed by excessive dry weather. During the last weeks of July and the month of August, however, some rains were experienced which decidedly helped the crop, so that last year's output is now estimated at about 265,000 pounds.

Large quantities of peppermint oil changed hands during September and October of last year. The market closely followed the weather conditions and in October $3.75@3.85 per pound were paid. Toward the end of last year there was a decided falling off in the demand and prices receded about 10@15c. per pound.

As practically all stocks in growers' hands are now exhausted, it seems almost certain that higher prices will prevail within the near future.

Spearmint.

A largely increased acreage and the fact that many of the spearmint plantations were in the territory where plentiful rain fell last summer, served to make plenty of this oil last season. Early in the fall spearmint oil advanced quite a little in price in sympathy with peppermint oil, but as soon as it was ascertained that a sufficient supply of oil had been produced a decline again took place.

The 1913 crop was probably 10,000 pounds larger than that of 1912, but consumption increased and it is expected that the surplus will be consumed before the new crop oil is available.

DOMESTIC CRUDE DRUGS.

Golden Seal.

The most important of crude American drugs, after reaching $5 per pound during the winter of 1911, was attacked by the bears in 1912, until the price declined almost $1, and the new crop of 1913 opened at a decline of over $1. The weapon used to hammer the market was the cultivated root, which frightened dealers and holders who all wanted to unload at once, but careful investigation revealed the fact that, while there is a small patch here and there, the cultivation is in its infancy yet, and it will be several years before there is enough to effect the market; on the other hand the wild root is becoming scarcer each year. Consequently, natural conditions prevailed again in 1913 and the article gained its loss and advanced more than $1 per pound and all that prevented a $6 market was the stringent money market in Europe and America, which curtailed the demand, and yet the year ended with less stock in the hands of dealers, than for many years, and 1914 will probably see an advance in price.

Mandrake Root.

This article began soaring from the beginning of the season, as the crop was exceedingly short, and there will not be enough root in the market to supply the demand, which will continue until the middle of May.

Blood and Lady Slipper Root.

Both advanced slightly during 1913 and there is very little of either being carried over.

Culvers Root.

The market is fairly glutted with this article and there is enough being carried over to supply the 1914 demand, even though not an ounce should be dug.

Wahoo and Slippery Elm Bark.

Both advanced materially, especially wahoo, but as the woods are full of these articles, there is reason to believe that prices will adjust themselves during this coming spring. They were only neglected on account of an abundance of farm labor and the extreme hot and dry summer.

LONDON DRUG MARKET.

A very fair year's trading was experienced in 1913 by the London market in crude drugs and medicinal chemicals, and although there were some several departures from the level of values in the previous years there were some notable expansions. Taking first some of the crude drugs which lend themselves to comparison we have the following table:—

	Open. £ s. d.	Close. £ s. d.	High. £ s. d.	Low. £ s. d.
Aloes, Cape, good hard bright..cwt.	0 18 0	0 4 4 0	0 5 1 0	0 3 8 0
Buchu, good round green..lb.	0 6 3	0 5 3	0 6 3	0 5 3
Balsam of tolu, fair quality....	0 4 0	0 2 6	0 4 6	0 2 3
Cardamoms, Ceylon – Mysore, good bold pallish to pale....	0 5 6	0 5 5	0 5 11	0 4 8
Ergot of rye, fair Russian	0 4 6	0 2 2	0 4 6	0 0 2
Ipecac— Rio, fair.....	0 8 9	0 8 0	0 9 3	0 7 4
Cartagena, fair..	0 9 0	0 7 6	0 9 0	0 7 6
Opium, good Turkey drug-gists'	0 21 0	0 15 3	0 21 0	0 14 0
Sarsaparilla, fair gray Jamaica..	0 1 10	0 1 10	0 2 9	0 1 8
Wax, good Jamaica .....cwt.	7 10 0	8 15 0	8 15 0	7 10 0

Scarcity caused a striking uplift in the value of Cape aloes, which almost consistently advanced in the first half of the year from 38s. to 48s. 6d. per cwt., followed, however, by some decline to 41s. in August, but in October a marked shortage and a keen demand brought the extreme figure of 51s. paid. This, however, was somewhat a fancy price and was not repeated, the market slowing at 44s., although at the intervening auctions supplies were sparse. Buchu hardly sold at all at the public sales, although there has been a fair business privately. The course of good sound green was roughly:— First month, 6s. 3d. per pound; second and third month, 5s. 10d.; fourth to ninth month, 5s. 9d., and tenth to twelfth month, 5s. 3d. A new ordinance now governs collection and buying and selling in the Cape and also improves "close" seasons. This, with additional duties, makes for a continuance of a high level of values for the article. Balsam of tolu receeded gradually from the high figures obtained in the latter part of 1913 and got down to 3s. 3d. in July and 3s. 5d. in mid-August, but towards the end of August New York began buying here and prices was advanced 6d. to 7d. per pound, bringing 4s. into effect, which was improved to 4s. 6d. in September; but, with occasional fluctuations, the article dropped as new crop arrived, finishing at 2s. 3d. Ergot of rye fell away about 58 per cent. on bigger supplies. Ipecac touched bottom in June and July at 7s. 6d. per pound, but recovered, although not maintaining the improvement. The stock figures by months of Rio and Cartagena ipecac show as follows during the last three years, the figures being the number of packages in the London stock warehouses:—

	Rio. 1911.	1912.	1913.	Cartagena. 1911.	1912.	1913.
Jan....	46	45	108	54	35	19
Feb....	54	36	81	53	31	23
March..	45	29	66	42	25	35
April...	39	30	69	43	26	28
May....	36	44	117	41	34	24
June...	34	34	116	38	29	20
July....	37	28	111	26	21	17
Aug....	24	55	88	22	14	18
Sept....	23	51	104	20	8	41
Oct....	60	118	146	24	21	65
Nov....	54	112	146	24	16	72
Dec....	49	115	149	23	19	69

Cardamoms have continued scarce and dear, the range of realizations in public auction for good bold palish to pale Ceylon mysore being shown above, but it may be added that up to 6s. 5d. per pound was paid publicly for extra-bold pale C. M. The lowest price of 4s. 8d. for bold was taken in June. Opium has moved against sellers in sympathy with the crop news from Turkey, the course of values being practically continuously downwards except towards the end of the year. Extreme scarcity of Jamaica sarsaparilla elevated the price to 2s. 9d. per pound in April; there was a sharp descent of 7d. per pound in May, bottom being touched in June, followed by some improvement. Short supplies also account for the increase of 25s. per cent. in the cost of Jamaica wax.

FINE CHEMICALS, ETC.

Under this head we have the following comparisons:—

	Open. s. d.	Close. s. d.	High. s. d.	Low. s. d.
Acetosalicylic acid, 1-ton lots.....lb.	2 3	1 9½	2 3	1 9½
Citrates— Ferri et ammon. and/or pot., 28-lb. lots.....lb.	1 7	2 2	2 2	1 7
Sodium, 28-lb. lots	1 9	2 4	2 4	1 9
Ferri et quin., 500-oz. lots...oz.	0 4¼	0 6	0 6	0 4¼
Cocaine, hydrochlor on contract.....	7 7	4 10	7 7	4 10
Iodine— Crude	0 7½	0 9	0 9	0 7½
Resublimed, 28-lb. lots.....lb.	11 8	13 8	13 8	11 8
Iodide of potassium, 1-cwt. lots..	10 3	12 0	12 0	10 3
Morphine muriate powder on contract.....oz.	10 11	8 0	10 11	7 0
Quinine sulphate— German makers..	0 9⅝	1 1	1 1	0 9¾
Second hands.....	0 9¼	0 11¾	1 0	0 9¼
Salicylic acid powder, 1-ton lots..lb.	1 1	0 11	1 1	0 11
Santonin, 56-lb. lots	98 3	105 0	105 0	98 3
Soda salicylate powder, 1-ton lots.	1 4	1 2	1 4	1 2
Sugar of milk, 1-ton lots.....cwt.	60 0	58 6	60 0	50 0
Strychnine, pure cryst., 100-oz. lots oz.	2 ½	1 8½	2 ½	1 8½

Commenting on the above it may be observed that reductions in the convention scale for acetosal acid were made mainly to meet the competition of "outside" makers, although a fall in salicylic acid was partly responsible for the second of the two declines. The rise in citratis was in sympathy with citric acid and that in ferri et quin cit was also influenced by the upward course of quinine. Cocaine consistently fell away in sequence to the Amsterdam leaf unit and the smaller world's demand and also through keenness to get what business was passing. Codeine and morphine more or less reflected movements of opium, but the latter and alkaloid was somewhat restrained in its downward course by some British makers being at times unable to deliver prompt, owing to works being full up with orders. The iodine syndicate surprised the market in August with one of its unexpected advances for crude, amounting to 1½d. per ounce. This being the first alteration since June, 1912; resumblined and iodine salts naturally followed. Quinine has been the feature of the year, the agreement between the Java planters and European makers being at last consummated as indicated and forecasted in special London cables to the Reporter. When it became evident that the interests were getting close together the position hardened all round, gathering additional force as July 15 approached (the date agreed by which the planters were to finally accept or reject the agreement), gaining further before the end, so that German makers' price was 3¼d. dearer at the finish and second hands 2½d. higher, closing, however, rather below the best. The "outside" price has since further advanced. The recession in salicylic acid and soda salicylate followed the cheaper cost of carbolic acid. Santonin has continued in the grip of the Turkestan syndicate with the increased value indicated above. Sugar of milk was declining until scarcity of raw material and an American demand in Europe found makers well sold ahead, and values recovered (in August) to the initial price of 60s.; throughout the autumn quotation was from 55s. to 57s. 6d. in December on further orders from U. S. A., actuated by the article becoming duty free, makers added £2 10s. to the schedule. As regards strychnine one of the manufacturers in October reduced his previously nominal price by 4d. per ounce on the alkaloid with the rolls in proportion; and then his competitors met the competition.

Camphor and Menthol.

Camphor was flat throughout the year with prices generally closing at less than they began. The only notable feature was a reduction by the Japanese crude monoply, which took place in June and amounted to 7s. 6d.

per cwt., making the B quality 135s. per cwt. c. i. f., and the B B 142s. 6d. c. i. f.; this was the first change since March, 1911. The price variations of camphor in 1913 are expressed in following table and it need only be added that within the last few months there has been some revival of manufacturing interest in synthetic camphor:—

	Open.	Close.	High.	Low.
	s. d.	s. d.	s. d.	s. d.
China crude..cwt.	170 0	170 0	172 6	170 0
Japan crude B...	142 6	135 0	142 6	135 0
Japan refined—				
1-oz. tablets..lb.	1 7	1 6	1 7	1 5½
2½-lb. slabs.....	1 6	1 5	1 6	1 4½
English bells, 5-lots	1 11	1 11	1 11	1 11

Below is appended a three years' monthly review of London spot prices for menthol, based on weekly closing prices in each month:—

	1913		1912		1911	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Jan...	31 0@30	0	22 0@27	6	8	9
Feb...	30 0@29	6	21 6@22	0	8	6
Mar...	30 0@28	0	21 0@22	6	8	6
April..	28 0@26	6	22 0@22	6	8	6
May...	26 0@22	6	21 6@22	6	8	6@ 8 7
June..	22 0@21	0	21 6@23	6	8	6
July...	22 0@20	6	23 0@24	0	8	6@ 9 3
Aug...	21 0@20	0	26 6@28	0	9	3@ 9 6
Sept...	21 0@18	0	28 0@28	6	9	8@10 3
Oct....	16 0@14	6	31 0@37	6	10	6@10 9
Nov...	14 0@10	6	37 6@40	0	10	9@11 3
Dec....	10 3@10	0	33 0@36	0	11	0@11 9

From this it will be seen that the year began with a legacy of exalted value from the remarkable prices of 1912, but the decline which had already set in before the dawn of 1913 was further—although only gradually—developed as the year progressed. In the second half, as the evidence of more plentiful supplies became apparent, the decline was more marked and in the autumn it was precipitous. There has, however, since been another "flurry" in the commodity.

Various Oils.

Oil.	Open.	Close.	High.	Low.
	£ s.	£ s.	£ s.	£ s.
Codliver, Norwegian, non-freezing barrel, c. i. f.....	0 66	0 85	0 150	0 66
Castor, Hull, firsts, per ton.....	29 5 27 0	29	5	26 0
Castor, Belgian firsts	29 0 26 10	29	10	25 15
Olive, Spanish.....	53 0 49 0	56	0	47 0

Old cod liver oil (Norwegian non-congealing) was about 66s. per barrel, c. i. f. London at the beginning of the year. The new season's product began at 72s. but rapidly improved, so that 100s. was ruling at the beginning of March. This, on renewed evidence of a smaller out turn price, was rapidly rushed up so that some were quoting 150s. in the third week in March. This, however, proved to be over-doing it and buyers holding off, prices gradually receded to the neighborhood of 90s., folowed by some recovery as the collection drew to a close, which, however, was not fully maintained and the later months witnessed a drooping market, closing at 85s. Castor oil was generally under easier conditions throughout the year and Spanish olive oil likewise, although both articles finished above the lowest.

Benzoin and Asafetida.

Sumatra benzoin realized good prices during the year, as the following record of some public sales shows:—

	£ s. d.	£ s.d.
Jan.-March, good seconds.....	8 2 6@8	5 0
March-June, fair do.....	7 5@6	15 0
July-Sept., ordinary do.....	6 10 0@6	15 0
Oct.-Dec., ordinary to fair do.....	6 15 0@7	5 0

Siam Benzoin.

Siam benzoin has not sold readily in auction, but the withdrawal prices were an indication of the high value. Pale siftings sold in May at £13 per cwt.; for medium to bold loose tears, £29@£32 was the price at one of the September events, and £26@£28 for small ditto; in October small to medium, some bold loose, almonds were taken out at £32 10s.; and in December bold reddish free almonds sold at £22 per cwt. Palembang benzoin has not been plentifully offered; ordinary, in tins, sold at 62s. 6d. per cwt. in February, and ordinary barky at 55s. (without reserve) in October.

Public sales of asafetida have been few and far between, but the following record of an early and late auction will exemplify rates current in 1913:—

April 17—	£ s. d.	£ s. d.
Good to fine pale almond drop, cwt.	5 12 0	6@6 2 6
Good softish pale drop and pinky block	0 92	6@
Fine pinky block.....	0 90	6@
Fair to good free almond and pinky block	0 80	0@0 85 0
Fair soft pinky block.....	0 55	0@0 70 0
Common to good pale block....	0 55	0@0 65 0
Ordinary brown block.....	0 37	0@0 45 0
October 3—		
Good brown palish drop rather sandy	0 72	6@0 77 6
Pale and brown drop and block.	0 60	0@
Soft part pinky.....	0 47	6@0 52 6

At the October event £7 10s. per cwt. was wanted for good free almonds part soft block.

Senna.

Offerings of Tinnevelly senna were not so plentiful as in 1912 and realizations at the beginning and end of the year were as follows:—

January 9—	d. d.
Fair boldish green leaf, lb.....	2¼@2¾
Medium	2 @2½
Common to ordinary small and yellowish pods.....	1 @1¼
Pods	1½@
December 11—	
Good bold green leaf.....	3¾@4
Middling to fair boldish.....	3 @3½
Bold yellowish.....	2¼@2¾
Small medium.....	2 @2¼
Small yellow and specky.....	1¼@1¾
November 27—	
Pods dark to fair.....	1¼@2

LONDON ESSENTIAL OIL MARKET.

The English essential oil trade during late years has become much more concerted towards the advancement of its best interests. There has been considerably greater liberality in discussion of matters of common concern to both sellers and consumers and this has resulted among other things in making the path of the sophisticator more difficult. Prominent among the subjects freely debated has been the status of the olfactory organ in the valuation of aromatic bodies. There have been those who have claimed for the trained nose a superior position to that of the test tube and, while it can hardly be said that this proposition has received general indorsement, it certainly has brought out the high degree of discriminative perfection to which the nasal organ can attain.

As regards turnover in essential oils and allied articles, the general turnover in 1913 was good and several articles attracted considerable attention. Lemon oil made perhaps the most spectacular demonstration, touching £1 per pound on spot in June—higher than the top price at the time of the Messina earthquake in 1908. The upward movement had its basis in a genuine shortage for the world's requirement. The course of the market during the year may be shown in the following table of spot prices, which includes 1912 and 1911 for comparison:—

	1913		1912		1911	
	High.	Low.	High.	Low.	High.	Low.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Jan.....	13 0	10 0	5 10	5 6	3 6	3 6
Feb.....	13 0	12 6	6 1	5 9	4 7	3 8
March...	12 6	12 6	6 6	6 6	4 7	4 3
April....	12 9	12 6	6 6	6 3	4 6	4 3
May.....	15 6	12 9	6 3	6 0	5 0	4 6
June.....	20 0	15 6	7 0	5 9	5 3	5 0
July.....	19 0	17 9	7 6	7 0	6 0	5 3
Aug.....	17 9	15 6	8 0	7 6	6 3	6 0
Sept.....	15 6	15 0	8 0	7 6	6 3	6 0
Oct.....	15 3	12 6	8 3	8 0	6 9	6 6
Nov.....	12 6	12 3	8 3	8 0	6 6	6 0
Dec.....	12 3	10 6	9 0	8 3	6 0	5 10

The chief causes operating towards the significant high market in 1913 were (1) the very small carry-over stocks with which the new season was begun; (2) the carrying over of many old contracts into the new campaign; (3) the greater demand for lemons on American account through the frost damage to the Californian fruit; (4) the heavy demand for oil from the United States in anticipation of tariff modifications, and (5) the inevitable speculative manipulation. High water mark in value was reached about midsummer and then those who could wait began to place their hopes of relief in the new crop. Prices accordingly showed gradual recession until in the autumn a larger Sicilian outturn in the new season seemed probable and the decline became more marked. In bergamot oil a high level of value again obtained. In January and February from 27s. to 30s. c. i. f. was operative and the succeeding months saw a decline, 23s. 3d.@27s. c. i. f. being quoted in May and 21s. in June. This was followed by a small improvement, 23s. 6d. c. i. f. being named in September. New crop figures took a definite character in November at 20s. 9d.@21s. 9d. and the year closed with a firm undertone at 21s. 9d.@22s. 6d. c. i. f., according to seller. The market has since been receding. Orange oil more or less dovetailed into the general Sicilian position, sweet opening at 10s.@10s. 6d., advancing to as much as 16s. in September and then falling back to 10s. 6d.@12s. c. i. f. at the close.

Peppermint oil (American) advanced as a result of new crop deficiency. Early views were favorable to an increased output, but subsequently first frosts and later drought brought about a decline in the acreage harvestable and in the autumn it became evident that the yield would be below the universal requirement. The range of prices has been as follows:—

WAYNE COUNTY.

	1913.	1912.	1911.
	s. d.	s. d.	s. d.
Open	11 6	12 3	10 9
Close	14 9	11 6	12 6
High	15 6	12 3	12 9
Low	11 6	10 6	10 9

H. G. H.

	1913.	1912.	1911.
	s. d.	s. d.	s. d.
Open	14 9	15 3	13 0
Close	18 0	15 0	15 6
High	18 0	15 9	15 6
Low	14 3	14 9	13 0

The variations in spot value of some other leading essential oils may be epitomized in the following table, the figures being based on weekly closing prices:—

	Open.	Close.	High.	Low.
Oil.	s. d.	s. d.	s. d.	s. d.
Aniseed, star.....	7 0	6 4	7 3	6 4
Cassia, 80-85 per ct.	3 9	3 4	3 9	3 2
Citronella, Ceylon, in drums.....	1 6½	1 9½	1 10½	1 6½
Lemongrass, Cochin	0 4¼	0 3¾	0 5	0 3½
Peppermint, Japan.	6 11	4 3	7 0	3 11

Ainseed (star) oil receded in the first half of the year from 7s. to 6s. 7d. per pound. At the end of June, however, a spurt in demand prompted by shortage in stocks lifted value to 7s. 3d., after which 7s. practically obtained until the autumn, when a further decline set in, 6s. 4d. being the closing figure. Cassia oil was also a falling market in the first six months, bottom being touched in June, with a partial recovery before the autumn, which, however, was partly lost before the finish. The article has been interesting from the general point of view by efforts of English chemists and commercial men to introduce an additional and higher market grading, it being realized that there are oils which naturally contain more than 85 per cent. cinnamic aldehyde and that those are often diluted down with resin to bring them to the recognized standard of 80 to 85 per cent. c. a. The efforts to create an 89-95 per cent. c. a. grade have won a gratifying measure of appreciation and there are those who look to it becoming a general market basis. Ceylon citronella oil had a rapid upward move in the summer through increased stringency in primary conditions of supply, and this influence was operating to the end of the year. Java citronella has been extremely scarcer throughout the period and from 1s. to 6s. per pound has been asked, according to position and quantity.

Of other oils bois do rose (femelle), which commenced the year at 12s. per pound became extremely short in supply in the spring and rose to 13s. 6d., improving further to 16s in July, where there was some falling away to 14s., at which price the year closed. Cajuput oil improved from 2s. 6d. to 3s. per bottle and caraway oil (twice rectified) from 4s. 6d. to 5s. 2d. Clove oil, following the spice, dropped from 5s. 8d. in January to 3s. 8d. in December, these figures being for English distilled. Cinnamon leaf oil improved, but at 3½d.@3¾d. at the finish was below the best at 4d. The second half of the year brought rather better prices for eucalyptus oil; in December 1s. 6d. @1s. 7d. was obtainable for 75 per cent. Geranium oil figured with considerable importance, the Bourbon distillate increasing in April to 33s. spot in consequence of the cyclone; it, however, fell, subsequently, first to 28s. and later to 22s. African improved in May to 35s. (after opening at 30s.), but dropped again to 25s (in November-December). New crop lavender oil was established in the fall at 15s. 6d.@17s. per pound, as against 13s. 9d.@15s. 4d. in January for the old season's distillate. Hand pressed lime on increased in value considerably, opening at 10s. 6d., rising to 15s. 9d.@16s. in the autumn, but closing at 9s.@10s.; distilled lime oil reached 3s. in August, but finished at 1s. 9d. Otto of rose has been invested with the usual doubts as to the Bulgarian outturn and consumers have been more or less groping in the dark; price here has generally ranged from 57s. to 65s. per English ounce, as to brand, but oil guaranteed of "own" distillation (as ditsinguished from peasants' oil sold by shippers) has been making 100s.@113s. per ounce. Palmarona oil advanced from 9s. 9d. to 10s. 6d. to 12s. in May, finishing round about 9s. c. i. f. Spearmint oil fell from 21s. to 23s. in the middle of the year to 17s. 3d. toward the close. Sandalwood oil has been a very firm market at 21s.@23s. per pound, the firmness being accentuated by the results of the Mysore wood auctions in the fall.

LONDON VANILLA AUCTIONS.

While there is large business done privately, the periodical auctions in London are a good indication of real values. There were eight such events in 1913, or one more than in each of the two years immediately preceding. The distribution of the goods at the monthly auctions over the last three years with the totals offered and sold was as follows:—

	1911		1912		1913	
	Of-fered.	Sold.	Of-fered.	Sold.	Of-fered	Sold.
January ..	1,348	889	371	240	976	809
February..	...	...	504	635	494	408
March	94	83	140	118	...	...
April	...	...	...	...	329	287
May	81	48	256	221	134	101
June	83	83	...	...	75	60
July	...	...	177	125	35	35
August	...	...	...	...	...	...
September.	39	35	...	...	...	...
October ...	141	138	97	73	114	110
November..	693	558	623	573	286	186
December..	...	...	...	...	...	...
Totals...	2,479	1,784	2,168	1,985	2,437	1,987

Analyzing the offerings we have the following as the chief contributors:—

	1911		1912		1913	
	Of-fered.	Sold.	Of-fered.	Sold.	Of-fered.	Sold.
Seychelles..	1,929	1,379	1,331	904	1,298	907
Madagascar	259	137	440	295	766	738
Mauritius..	122	122	153	148	184	153
Ceylon.....	66	66	61	61	93	73
Java.....	18	18	20	20	29	29
Bourbon...	11	2	11	11	40	12

At the first auction of the year there was a moderate demand for the good supply on offer and there was a general decline of 2s. per pound, except for foxy and splits, which fell 6d. only. Good competition at the February event brought a recovery of 6d.@1s., and again in April there was an occasional further improvement of 6d. In May and June orders were fairly plentiful as a result of the tariff discussions on your side, and the market maintained a very firm undertone. A steady position was continued throughout the summer months, reflecting in a measure the influence of the uncertain conditions in Mexican beans and the possibility of a run on other kinds through the effect of the revolutionary troubles, on the Mexican crop. In Autumn, however, fears in this score having been calmed, a slow demand was experienced and, although the October auction was reported "unchanged," 6d.@1s. decline was registered at the November sales.

As indicating realizations the following may be quoted.—

	January		February	
	s. d.	s. d.	s. d.	s. d.
Seychelles—				
fair to good long..lb.	13 6@15	0	10 6@13	6
medium to long...	11 0@14	0	.....	
short to medium..	10 6@11	6	9 6@11	0
Madagascar—				
fair to good long...	.....		14 0@15	0
medium to long...	9 0@12	0	.....	
Mauritius—				
fair to good long...	.....		.....	
medium to long...	10 0@13	0	.....	

	April		May	
	s. d.	s. d.	s. d.	s. d.
Seychelles—				
fair to good long..lb.	12 6@13	6	.....	
medium to long...	10 0@12	6	11 0@12	0
short to medium..	.....		.....	
Madagascar—				
fair to good long...	13 0@14	0	.....	
medium to long...	10 6@12	6	11 0@12	6
Mauritius—				
fair to good long...	13 6@16	0	.....	
medium to long...	11 6@15	0	11 6@12	0

	June		July	
	s. d.	s. d.	s. d.	s. d.
Seychelles—				
fair to good lond..	12 0@15	6	.....	
medium to long...	.....		.....	
short to medium..	.....		.....	
Madagascar—				
fair to good long...	.....		13 6	
medium to long...	.....		11 6@12	6
Mauritius—				
fair to good long...	13 6		14 0	
medium to long...	11 6@12	6	12 0@12	6

	October		November	
	s. d.	s. d.	s. d.	s. d.
Seychelles—				
fair to good long..	13 0		12 0@13	6
medium to long...	10 6@12	0	.....	
short to medium..	.....		10 0@12	0
Madagascar—				
fair to good long...	.....		.....	
medium to long...	.....		.....	
Mauritius—				
fair to good long...	.....		.....	
medium to long...	.....		.....	

THE ENGLISH GLYCERINE MARKET.

The concluding statement in last year's review of the 1912 English glycerine market, viz., "that there was no reason to anticipate any serious reaction because those behind the scenes seemed strong enough to control the situation," has been justified by events in 1913. True, that almost throughout the twelve months the position for all except those in the innermost ring has been beset by uncertainties which have made operations, especially those for consumption, particularly difficult, but the producing interests at back of the article have been powerful enough to compel recognition of their views on the commodity. Unusually strained relations have existed between buyers and sellers and the ultimate predominance of the latter was in a measure assisted by the better feeling existing among the great English soap makers which has enabled closer co-operation in offering glycerine. Time was, not so long ago, when sentiments between the great firm of Lever and the combine of Crosfields & Gossages controlled by Brunner, Mond & Company were not of the friendliest; but now their association in mutual business interests is closer. There have, in fact, at various times been suggestions of a proposed amalgamation at home, but these have never apparently got beyond the gossip stage abroad; however, there have been more definite rumors, as witnessed by recent cables from Shanghai intimating a combine of the above interests for the purpose of manufacturing and marketing soap in China. The possibility of such a merger has been denied on behalf of Brunner, Mond's, but the rumors at time of writing are still being repeated and supported by detailed dispatch from Shanghai. Questions, however, of actual merger, aside and apart also from the assistance in maintaining the glycerine market resulting from friendlier association there has been some economic conditions operating towards the higher level of which 1913 on balance showed. The trend is indicated in the following table which gives approximate prices f. o. b., according to position, the C. P. price being naked in five-ton lots for the home trade:—

	Jan..£.	April.£.	Sept.,£.	Dec..£.
British crude, 80%	54@56	58@60	60@65	60@70
Continental, do....	53@54	56@57	55@57	57@59
Saponification	61@62	64@—	63@64	65@68
Dynamite	77@79	77@80	77@79	81@85
C. P., 1.260 naked..	90@—	90@—	90@—	95@—

The earlier months of the year were handicapped by the weight of heavy stocks and doubt as to the probable scope of the all-important factor—American demand. By the end of the first quarter a sounder condition had been established by the lifting of a considerable proportion of stock, European buyers being compelled by the shortness of their supplies to come into the market, more particularly for near delivery, and the United States buying for more distant shipment. Prices accordingly showed an advance except for dynamite and C. P. Some wavering was noticeable between April and September among Continental holders, but as far as England was concerned, there was little chance of a serious reaction having regard to the strength of holders of the now much-reduced surplus stocks. By the end of September the larger part of the 1913 production had been engaged and a harder crude market and higher export rates were followed by a £5 advance for the home trade by the Chemically Pure Glycerine Association,

bringing the following scale into effect:—

	5 tons and up-ward.	1 ton and under 5 tons.	10 cwt. and under 1 ton.	5 cwt. and under 10 cwt.
	s. d.	s. d.	s. d.	s. d.
10 cwt. drums.....	95 0	95 6	96 0	.. ..
5-cwt. drums.....	95 6	96 0	96 6	97 0
2½-cwt. drums.....	96 0	96 6	97 0	97 6
1-cwt. drums.....	98 0	98 6	99 0	99 6
56-lbs. tins, in cs..	99 0	99 6	100 0	100 0
28-lb. tins, in cs..100	6	101 0	101 6	102 0

There were no other changes in C. P. during the year, but, of course, second hand parcels could be picked up at £2@£3 below the official rates. The other grades, however, continued in the last quarter of the year to manifest additional strength. It became obvious that the United States had increased her imports and before the end of the year there were good American inquiries for 1914 delivery. The great quantity is in speculative hands and with supply and demand fairly well balanced and the whole situation controlled by the important interests referred to, the outlook for cheaper glycerine does not seem very hopeful.

LONDON SHELLAC MARKET.

Shellac in London was throughout 1913 a higher market than in the previous year and in fact a better range of values ruled than during the preceding four years. There was a generally rising tendency during the first half of the year under the influence of reports of damaged Indian crops and top was reached in August-September followed by a gradual recession, although the finish was 14s. per cwt. higher on spot than at the commencement. An analysis of the weekly spot prices cabled to the Reporter show as follows, 1909-12 being added for comparison:—

	Open.	Close.	High.	Low.
	s. d.	s. d.	s. d.	s. d.
1913.....	71 0	85 0	102 0	71 0
1912.....	63 0	70 0	71 6	61 0
1911.....	77 0	63 0	80 0	62 0
1910.....	68 0	77 0	88 0	65 0
1909.....	82 0	69 0	82 0	64 0

The quantity delivered from London warehouses was larger than that received, but the latter was greater than in 1912.

LANDED.

	1913, cases.	1912, cases.	1911, cases.
Orange	33,085	29,954	38,456
Garnet	6,864	4,942	3,956
Button	6,622	8,865	5,951
Totals	46,571	43,761	48,363

DELIVERED.

	1913, cases.	1912, cases.	1911, cases.
Orange	36,457	32,947	33,870
Garnet	6,912	4,804	3,472
Button	7,692	8,078	6,870
Totals	51,061	45,829	44,312

STOCKS AT END OF YEAR.

	1913, cases.	1912, cases.	1911, cases.
Orange	87,126	90,498	93,491
Garnet	2,999	3,047	2,999
Button	3,845	4,875	4,088
Totals	93,930	98,420	100,488

The rising Calcutta cable stimulated demand and the gradual reduction in these stocks contributed to elevation of values, which week by week closed as follows:—

FAIR FREE T. N., SPOT.

	1913.	1912.	1911.	1910.
	s. d.	s. d.	s. d.	s. d.
Jan. 4....	71 0	63 0	78 0	68 0
Jan. 11....	72 6	63 0	76 0	68 0
Jan. 18....	71 6	63 0	76 0	68 0
Jan. 25....	74 6	63 0	75 0	68 0
Feb. 1....	75 0	63 0	72 0	68 0
Feb. 8....	76 0	63 0	71 0	65 0
Feb. 15....	81 0	61 0	71 0	66 0
Feb. 22....	83 0	61 0	71 0	68 0
March 1..	82 0	61 0	73 0	67 0
March 8..	80 0	62 0	73 0	67 0
March 15..	79 0	61 0	74 0	68 0
March 20..	79 0	61 0	74 0	68 0
March 29..	79 0	62 0	72 0	71 0
April 5....	79 0	62 0	72 0	71 0
April 12....	78 0	64 0	72 0	65 0
April 19....	76 0	63 0	72 0	65 0
April 26....	76 0	64 0	72 0	65 0
May 3....	75 0	63 0	70 0	67 0
May 10....	76 0	63 0	71 0	68 0
May 17....	81 0	63 0	71 0	70 0
May 24....	82 0	63 0	71 0	73 0
May 31....	85 0	63 0	71 0	72 0
June 7....	86 0	63 0	70 0	72 0
June 14....	88 0	63 0	68 0	72 0
June 21....	89 0	63 0	68 0	73 0
June 28....	92 0	62 0	69 0	74 0
July 5....	89 0	62 0	69 0	77 0
July 12....	90 0	62 0	69 0	81 0
July 19....	92 0	62 0	67 0	87 0
July 26....	93 0	62 0	65 0	88 0
Aug. 2....	94 0	62 0	63 0	86 0
Aug. 9....	95 0	62 0	63 0	87 0
Aug. 16....	101 0	63 0	63 0	87 0
Aug. 23....	102 0	63 0	62 0	86 0
Aug. 30....	102 0	66 0	62 0	84 0
Sept. 6....	102 0	66 0	64 0	83 0
Sept. 13....	99 0	66 0	64 0	83 0
Sept. 20....	99 0	67 0	66 0	82 0
Sept. 27....	97 0	69 0	66 0	81 0
Oct. 4....	81 0	69 0	66 0	85 0
Oct. 11....	90 0	71 0	66 0	84 0
Oct. 18....	90 0	70 0	66 0	85 0
Oct. 25....	90 0	71 6	66 0	87 0
Nov. 1....	92 0	70 0	65 0	85 0
Nov. 8....	90 0	69 0	65 0	85 0
Nov. 15....	89 0	68 0	64 0	85 0
Nov. 22....	87 0	69 0	64 0	82 0
Nov. 29....	87 0	69 0	63 0	82 0
Dec. 6....	82 0	69 0	63 0	80 0
Dec. 13....	82 0	68 0	63 0	80 0
Dec. 20....	85 0	70 0	63 0	77 0
Dec. 27....	85 0	70 0	63 0	77 0

Monthly quotations for futures over the last two years show;—

1913.			1912.		
	s. d.	Dely.		s. d.	Dely.
Jan. 4....	72 0	Mar.	Jan. 6....	63 6	Mar.
Feb. 1....	75 0	Mar.	Feb. 3....	63 0	Mar.
March 1..	82 0	May	March 2..	62 0	May
April 5...	80 0	May	April 6...	63 0	May
May 3....	76 0	Aug.	May 4....	64 0	Aug.
June 7....	87 0	Aug.	June 1....	64 6	Aug.
July 5....	89 0	Aug.	July 6....	62 0	Aug.
Aug. 2....	95 6	Oct.	Aug. 3....	63 0	Oct.
Sept. 6....	103 0	Oct.	Sept. 7....	68 0	Oct.
Oct. 4....	92 6	Dec.	Oct. 5....	69 0	Dec.
Nov. 1....	93 6	Dec.	Nov. 2....	70 0	Dec.
Dec. 6....	85 6	Mar.	Dec. 7....	70 0	Mar.

CARAWAY SEED IN 1913,

Trade was dull and slow and on the whole disappointing. On the extraordinarily small crop of 1912 (reaching only 29,000 bags), there was gathered in 1913 a good sized crop, but one of rather poor quality.

Dark brown colored seed was for the greater part musty and devoid of oil. The old crop stocks (those of 1909, 1910 and 1911) had a depressing influence and the little good seed left from the 1912 crop sold at 15@15½ Dutch guilders only, per bag of 50 kilos, while old and 1913 crop seed was quoted at 14½@14¾ guilders, with small trade.

Statistics for the last five years, as to planted area and average yield, follow:—

	Planted area, H. A.	Average yield, bags per hectoliter.	Total bags.
1909.....	7,100	24	170,000
1910.....	7,600	23	174.000
1911.....	8,200	27	224.000
1912.....	2,900	10	29.000
1913.....	5,300	20	106.000

In the last few years the yield of oil in the seed has been decreasing seriously, which is attributed to the increasing use of artificial manure generally.

AMSTERDAM STATISTICS OF CINCHONA BARK AND QUININE.

Shipments from Java to Europe.

	Kilos			
	1904.	1905.	1906.	1907.
Jan...	427,500	380,500	298,500	716,500
Feb...	531,000	393,000	372,000	714,000
Mar...	235,000	758,500	392,000	870,000
April.	747,500	884,000	521,500	910,000
May...	585,000	772,000	621,000	692,500
June..	557,000	625,500	727,500	648,500
July...	566,000	715,500	721,500	680,000
Aug...	762,500	936,000	764,500	810,000
Sept..	578,500	629,000	645,500	811,000
Oct....	550,000	809,000	667,500	700,000
Nov..	629,000	616,500	744,500	958,000
Dec...	640,000	429,000	282,000	595,000
	7,225,000	7,093,500	6,758,000	8,606,000

	Kilos		
	1908.	1909.	1910.
January	690,000	510,500	585,500
February	407,500	530,500	454,000
March	444,500	422,500	680,000
April	652,500	639,500	789,000
May	727,500	659,000	684,000
June	756,500	896,000	1,174,000
July	734,500	864,000	812,000
August	836,500	710,000	924,500
September	557,500	1,008,000	907,000
October	678,000	680,000	532,000
November	569,000	552,000	795,000
December	785,000	672,500	678,500
	7,838,500	7,744,500	9,021,500

	Kilos		
	1911.	1912.	1913.
January	710,500	319,000	653,700
February	473,000	461,000	782,500
March	746,500	406,000	481,000
April	518,500	436,500	376,000
May	725,000	689,000	488,000
June	758,000	818,000	949,500
July	471,000	795,000	893,500
August	864,500	1,053,000	954,750
September	880,000	846,500	1,134,000
October	767,000	879,000	1,067,500
November	794,000	799,000	1,035,500
December	594,000	593,000	596,500
	8,308,000	8,095,000	9,355,950

Review of the Cinchona Bark Auctions.

	Offered in ten auctions, packages.	Total kilograms— Bark.	Sulph. of quinine.
1913.....	143,992	12,597,088	741,163
1912.....	114,896	10,078,950	608,051
1911.....	103,301	9,139,662	569,954
1910.....	99,412	8,841,733	532,259
1909.....	93,311	8,331,742	496,422
1908.....	90,659	8,224,316	484,954
1907.....	94,030	8,532,310	543,231
1906.....	95,601	8,794,480	477,217
1905.....	100,391	9,092,268	499,197
1904.....	91,878	8,146,302	389,562
1903.....	83,404	7,304,841	354,340
1902.....	78,998	6,894,083	344,003
1901.....	74,163	6,588,133	326,999
1900.....	60,591	5,262,142	248,140
1899.....	65,251	5,583,393	271,259
1898.....	73,831	8,495,351	321,007
1897.....	59,606	5,315,173	291,351

	Average percentage of manufacturing bark.	Sulph. of quinine— Sold, kilos.	Unsold, kilos.
1913.....	6.12%—	403,233	337,930
1912.....	6.16@6.59	337,812	270,239
1911.....	6.09@6.03	476,030	97,924
1910.....	6.05@6.72	470,015	42,215
1909.....	6.02@6.56	448,040	47,782
1908.....	6.14@6.53	438,038	46,916
1907.....	5.68@6.51	461,188	20,760
1906.....	5.49@6.09	446,282	30,935
1905.....	5.29@5.88	292,497	167,619
1904.....	4.58@5.37	357,178	32,384
1903.....	4.59@5.85	314,098	39,060
1902.....	4.92@5.44	233,887	14,253
1899.....	5.14@5.69	246,769	24,490
1898.....	4.88@5.43	237,680	83,327
1897.....	5.26@6.10	290,674	60,677

Unit Prices of Cinchona Bark.

[In Dutch cents.]

Auction.	1913.	1912.	1911.	1910.	1909.	1908.
First	4.25	3.07	3.06	3.10	3.03	3.42
Second	4.31	3.57	3.03	3.14	3.10	3.68
Third	4.30	4.40	3.08	3.14	3.15	3.54
Fourth	4.21	4.42	3.03	3.51	3.20	3.55
Fifth	4.14	4.38	3.19	3.19	3.10	3.52
Sixth	5.09	4.31	3.22	3.24	3.15	3.18
Seventh ..	5.00	4.29	3.14	3.09	3.00	3.12
Eighth ...	5.60	4.26	3.12	3.11	2.98	3.40
Ninth	5.60	4.24	3.07	3.01	2.95	2.32
Tenth	5.60	4.13	3.10	3.04	3.06	3.13
Avge. unit.	4.92	3.81	3.11	3.15	3.06	3.37
Auction.	1907.	1906.	1905.	1904.	1903.	1902.
First	6.78	4.00	6.15	6.25	6.45	7.45
Second	6.25	4.37	6.55	6.80	8.20	7.95
Third	5.42	4.18	6.30	7.50	7.65	8.60
Fourth	4.67	4.30	5.95	6.99	7.25	8.65
Fifth	4.25	4.24	6.00	6.40	6.20	7.25
Sixth	4.59	4.24	5.80	5.50	6.55	6.10
Seventh ...	5.00	4.02	5.75	6.25	6.90	4.90
Eighth	4.43	4.14	5.55	6.65	7.45	6.80
Ninth	4.26	4.62	5.20	6.45	7.45	6.05
Tenth	3.71	5.10	4.75	6.30	7.35	6.25
Avge. unit.	4.81	4.31	5.77	6.50	7.05	6.90
Auction.		1901.	1900.	1899.	1898.	1897.
First		7.25	8.90	4.70	6.90	2.12
Second		7.80	10.65	6.70	5.50	2.90
Third		8.95	10.05	10.90	4.25	3.90
Fourth		10.00	10.10	8.50	5.20	4.10
Fifth		10.45	10.35	8.25	4.10	4.20
Sixth		9.00	10.80	7.60	4.20	4.30
Seventh		7.60	11.75	6.25	4.80	4.32
Eighth		8.25	12.25	5.35	4.05	6.27
Ninth		7.70	10.90	6.80	4.67	7.90
Tenth		7.65	8.00	7.75	4.87	7.00
Average unit..		8.30	10.10	7.05	4.65	4.60

Stocks of Cinchona Bark in First Hands on December 31.

	Packages— Government.	Private.	Total.
1913.....	13,988	56,991	70,379
1912.....	9,541	43,370	52,911
1911.....	4,190	24,269	28,459
1910.....	6,268	22,018	28,286
1909.....	4,293	17,109	21,402
1908.....	5,817	16,418	22,235
1907.....	4,491	13,616	18,077
1906.....	5,575	15,061	20,636
1905.....	6,398	32,327	38,925
1904.....	4,264	11,549	15,813
1903.....	3,368	12,704	16,072
1902.....	3,681	13,271	16,952
1901.....	2,748	10,352	13,100
1900.....	3,014	10,761	13,775
1899.....	2,686	11,701	14,387
1898.....	2,657	9,606	12,263
1897.....	2,260	9,216	11,476
1896.....	2,694	14,346	17,040
1895.....	2,488	13,659	16,147
1894.....	2,322	22,313	24,635
1893.....	2,085	12,099	14,184
1892.....	2,318	8,950	11,268
1891.....	2,281	2,993	5,279

Amsterdam Quinine Works Quinine Auctions During 1913.

Date.	Offered, ounces.	Sold, ounces.	Price per kilogram, florins.
January 17....	50,000	5,000	16.50
January 31....	50,000	.....	18.00
February 21..	50,000	.....	17.50
March 7.....	50,000	.....	17.50
March 27.....	50,000	.....	17.50
April 11.....	50,000	.....	17.50
May 2.....	50,000	.....	17.50
May 26.....	50,000	.....	17.50
June 6.....	50,000	.....	17.50
June 20.....	50,000	.....	17.50
July 11.....	50,000	.....	17.50
July 25.....	50,000	.....	18.50
August 15....	50,000	5,000	18.50
August 29....	50,000	50,000	18.50½
September 19..	50,000	50,000	18.50
October 3.....	50,000	.....	18.75
October 24....	50,000	.....	18.50
November 7...	50,000	20,000	18.50
November 28..	50,000	.....	18.50
December 12..	50,000	.....	20.75

RESULTS OF AMSTERDAM COCOA BUTTER AUCTIONS.

Van Houten's Cocoa Butter Auctions.

	Van Houten— 1908— Kilos.	Average Dutch cents.	1909— Kilos.	Average Dutch cents.
Jan....	75,000	91.00	80,000	66.40
Feb....	90,000	86.15	90,000	63.55
March..	75,000	80.30	80,000	64.25
April..	80,000	82.95	80,000	64.40
May....	60,000	80.55	66,000	61.20
June...	65,000	76.55	70,000	60.70
July....	65,000	76.35	75,000	62.91
Aug....	45,000	84.25	47,000	63.25
Sept....	80,000	78.70	82,000	61.55
Oct....	80,000	73.30	80,000	61.41
Nov....	95,000	69.50	83,000	59.55
Dec....	90,000	70.45	114,000	58.50
Sold .	900,000	78.80	947,000	62.20

	Van Houten— 1910— Kilos.	Average Dutch cents.	1911— Kilos.	Average Dutch cents.
Jan....	73,000	59.55	82,000	86.06
Feb....	75,000	61.65	97,000	83.85
March..	82,000	60.05	89,000	84.71
April..	72,000	61.36	75,000	84.20
May....	60,000	60.30	69,000	82.25
June...	88,500	61.07½	87,000	101.50
July....	81,500	61.16	67,000	102.70
Aug....	52,000	62.26	71,000	102.01
Sept....	74,000	65.85	71,000	102.38
Oct....	81,500	66.85	91,000	98.50
Nov....	100,000	74.56	138,000	80.11
Dec....	110,000	85.50	100,000	73.13
Sold ..	949,500	66.10	1,019,000	89.08

	1912— Van Houten B— Kilos.	Average Dutch cents.	Van Houten A— Kilos.	Average Dutch cents.
Jan....	96,000	74.25	80,000	71.75
Feb....	89,000	82.01	50,000	78.50
March..	66,000	86.91	37,000	79.51
April..	81,000	79.60	34,000	70.12
May....	71,000	78.80	42,000	69.84
June...	80,000	80.20	30,000	74.67
July....	69,000	80.08	23,000	83.05
Aug....	83,000	83.75	50,000	80.00
Sept....	80,000	77.80	85,000	71.11
Oct....	78,500	80.12	85,500	72.50
Nov....	126,500	74.51	84,000	70.50
Dec....	104,000	79.38	86,500	76.02
Sold ..	1,021,500	80.05	687,000	74.04

	1913— Van Houten B— Kilos.	Average Dutch cents.	Van Houten A— Kilos.	Average Dutch cents.
Jan....	71,000	75.42	151,500	72.07
Feb....	58,000	84.38	139,000	75.15
March..	67,000	81.03	134,500	76.58
April..	27,500	84.83	110,000	76.36
May....	70,000	75.98	176,500	72.94
June...	57,500	77.17	179,500	75.97
July....	77,000	82.72	151,000	76.47
Aug....	51,500	84.23	171,000	76.44
Sept....	83,000	82.57	152,000	76.66
Oct....	100,000	83.81	202,000	78.00
Nov4..	69,000	90.99	140,000	80.85
Dec....	96,000	86.33	125,000	76.71
Sold ..	807,500	82.46	1,812,000	76.20

	Blooker— Bales.	Average Dutch cents.
January	840	72.63
February	845	73.45
March	945	76.73
April	770	74.90
May	770	74.76
June	630	77.02
July	630	75.94
August	700	78.34
September	700	76.90
October	805	78.34
November	1,050	80.02
December	1,015	76.38
Sold	9,800	76.28

SMYRNA OPIUM MARKET.

The year 1913 opened with a very fair inquiry principally from America and before the end of the first week in January some 43 cases changed hands at 17s. 9d. @ 20s. 3d. per pound as to quality.

Cold weather setting in, which generally forecasts, (more perhaps in the imagination of our holders) a total destruction by frost of all the poppy, brought about a very firm tone, and the 254 cases sold during the first two months, buyers had to pay very high rates ranging from 16s. to 20s.

March having proved an abnormally cold and dry month, the maintenance of the position was protracted, until well on during April, and reports of damages to the crop with scarcely any spring sowings, caused an advance of fully 1s. per pound to set in, and thus the 403 cases of the drug sold during the two months ending April, were paid during the previous two months.

Rain however having fallen during April saved the situation, and just as we were going to settle down to a more normal state of things, the projected doubling of the American duty on all importations of opium, caused a reaction to set in on this side, and notwithstanding that a crop of over 9000 cases was reported, during May, June, and up to the end of August, all native dealers were buying blindly and wildly in the interior, at unjustifiable high figures.

The sales during May and June, were more restricted, but soon after, owing to a decline they increased in volume, and taking the whole sales of the four months ending August they amounted to the record number of 1618 cases, of which America bought more than 70 per cent.

The prices ruling from May to the end of August were 12s. to 14s., but during September and October owing to shipments having ceased on account of the duty going into force in the latter month prices further declined and before November some 470 cases changed hands for English and Continental consumers at 10s. to 12s.

In November, however, owing to the fall sowings having partially failed on account of drought, the market recovered again, and during the last two months 653 cases were bought for England, the Continent and America at 12s. to 15s.

The total amount of opium sold for export during the calendar year of 1913 amounted to 3398 cases, of 160 pounds per case, or 543,680 pounds as against 378,880 pounds in 1912. The arrivals on this market from the growing centers from January to December have been 705,280 pounds against 362,880 pounds in 1912.

SALONICA OPIUM REPORT.

Owing to the deplorable situation brought about by the last two wars in the Balkan peninsula, business in general came, practically, to a standstill, and what little was done had no interesting feature worth noting.

The crop was really a large one, but much of it was lost in the devastation of the country; nevertheless the unfortunate and much harassed growers were able to secure a comparatively fair quantity to the extent of, say some 260,000 pounds.

By reason of the general insecurity in the opium districts, the impossibility of getting anything brought down here for shipment, and to the war operations going on at the opening of the season. Salonica was unable to share in that movement of the article from June to August which was caused by the active demand from the United States to import all possible before the increase in the Customs duties came into force. Consequently, the business done here has not been great and barely 30 per cent. of the crop has been sold up to the present, our exporting houses having been unable to begin buying before August and September; since when holders have not been disposed to offer anything for sale.

This disinclination on their part has been due to the drought prevailing in our regions all through the autumn season which, having hindered the sowings, has made the outlook for the next crop very precarious. Growers have now to wait until the spring to sow, and these spring sowings do not, usually, give much satisfaction in this country.

The 1913 crop produced a fair proportion of rich qualities yielding from 13 to 14 per cent. of morphine, and prices ruled for these richer sorts at about 18s. in September and 17s. per pound in October. Since then there has not been any transaction worth recording; except one of a few hundred pounds of qualities showing only a 13 per cent. grade of morphine at the equivalent of 18s. per pound.

Although the year closed with a comparatively large stock, some 180,000 pounds, of Salonica opium, sellers were scarce.

CONSTANTINOPLE TRAGACANTH OPIUM AND OTTO OF ROSE REVIEWS.

Turkish Gum Tragacanth

Prices were almost firm at the beginning of the year 1913 in Turkey, and especially white grades were scarce. Also in primary sources higher prices were offered and paid than later on could be realized in export business. The continuing war, with all disastrous financial and business consequences caused more than one holder to make a sacrifice in order to sell, and although the crop was not large, gum tragacanth could not all the year get out of a sort of weakness of prices, which hindered this article to get from the market the value it should receive, but in the meantime could not force in lower values. In fact sales continued to be made here at full values from time to time;

especially towards the end of March, when European orders were numerous. Prices continued the same way about all the year and were very little influenced by the peripeties of the Balkan war. The new crop which appeared towards October was again a small one, compared to crop of about two years ago. Prices were again kept firm in the interior, so that purchases could practically not be made during several months in the interior. Bids at somewhat reduced prices remained practically resultless, until towards the end of the year the holders in the interior agreed to sell, without asking higher values.

Stocks are light everywhere and if political conditions in Turkey continue to be satisfactory, it is not impossible that prices may grow firmer in a short time, considering that new gum cannot be found before September next.

Opium

This year's opium business was entirely placed under the influence of the American tariff. At the beginning of the year Karahissar opium, the standard druggist opium, noted 19s. and somewhat lower at 18s. 7d. towards the end of January. This weakness continued in February and the price for Karahissar reached 17s. 10d. about at the middle of March. Soon afterwards, however, prices increased again and in April Karahissar reached 20s. 3d., which price was sustained until the end of April. Even 20s. 8d. was paid for Karahissar opium of good selection, with the opinion, that these goods were the last to reach New York, before the new tariff would go into force. When, then, news arrived that the enforcement of the new tariff would be delayed until the first of August, prices at once began to drop, and on beginning of May were 19s. 11d. for Karahissar, at the middle of May at 18s 11d.; end of May 17s. 6d., in June at 16s. 6d., and at 15s. 5d. at the end of June. In July some cases of Karahissar obtained even 17s. 2d. and 17s. 6d., but when the new gum came into the market for sale, prices went again down to 14s. 9d. and 14s. 5d. for new Karahissar. Tariff again was not inforced at first of August, and speculators were entirely at a loss to judge of what they should do. During the middle of June Biledjik Balukkesser and Karahissar obtained 16s. 1d. and 16s. 6d., dropping again at the end of that month to 15s 5d. and 15s. 0d. At about the middle of August those qualities noted 13s. 5d. and 13s. 2d. At that time the last shipments could be forwarded to New York, with a chance to enter the states under the old tariff. Prices grew firmer later on, at 14s. 5d. and 14s. 9d. at the end of August, 13s. 4d. and 12s. 9d., being again made at the end of September. The reduction of prices continued in October, until Karahissar and Balukesser were obtainable at 11s. 11d. Our prices here could, however, never reach a level which would have permitted shipment of opium under the new tariff to America, were opium Karahissar was obtainable from different holders at $5.50 duty paid. In November our market showed already a considerable improvement, Karahissar obtaining liberally 13s. and 13s. 9d., while New York continued to sell at $5.60 and $5.70 duty paid. At the beginning of December Karahissar obtained here 15s. for a short time, later on 13s. 6d. and 13s. 4d., and closing on a firm basis.

Otto of Roses

The very high prices during 1912 rendered business in 1913 very difficult, distillers and planters insisting during a very long time on exceedingly elevated values, which according to holder's views were justified and in accordance with values obtained the year before. Foreign buyers and perfumers, however, were positively unwilling to enter any larger business at those exagerated prices, and the crop being in Turkey very large and good in quality, holders finally agreed to sell at somewhat reduced prices, granting, however, such little differences in price, that again a round large buying could not take place, exporters buying only the strict necessary. Our Turkish otto, however, resulted in very good quality and in a much larger quantity, than any year before, and can certainly satisfy even the most pretentious perfumer.

EUROPEAN CRUDE GLYCERINE MARKET.

The year 1912 marked at its beginning the end of the big downward movement which characterized the course of the market throughout 1911.

The year 1913 continued the advance of 1912 and may be considered as having had few fluctuations. Reasons for its few price movements will be shown later on.

Prices ranged for the pure saponification grade from 147.50 francs per kilo, with a discount of 3½ per cent. for cloudy goods, the lowest level reached in July, up to 170 francs per kilo, the highest figure attained in September and November.

The Savonne soaplye grade ranged in prices from 125 francs per kilo, with a discount of ½ per cent. for cloudy goods, reached in July to 145 francs, touched in September.

The fluctuations in 1913, therefore, were of little consequence, although in 1910, for example, a range of prices from 145 francs to 212.50 francs per kilo had been received.

When it is taken into consideration that during 1913 some speculations of considerable importance were put through, it will be seen that, without these, price movements would have been of even less consequence.

Two factors controlled the market in 1913, one of which may be said to have been the consequence of the other.

It appears that a kind of equilibrium had been established between production and consumption and this fact explains the lack of importance in the variations of prices for the commodity.

Production of glycerine did not fall off as heavily as many expert estimators believed it would, despite the high prices reached for the only raw material, but it must be borne in mind that production was not sufficient to prevent an upward movement, such as had been recorded for several years previously.

Consumption, as a result of the poor state of general business, failed to increase to the extent which had generally been anticipated, principally because of a diminution in the volume of business in the explosive-making industry which was a natural sequel to the falling off in general business.

In view of this fact some of the largest glycerine makers in Europe took the position that consumers would probably be willing to pay the prices which they felt compelled to ask if they withdrew from the market the quantities which they controlled and they therefore withdrew 15,000 to 18,000 tons of the commodity.

The outcome of the controversy between the producers and consumers of crude glycerine is still uncertain and as it will exert a material influence upon the market in the future it is impractical at this time to comment upon each, the developments in the subject which effected prices in 1913.

Protected by the position which the producers of crude glycerine had taken, second hands made considerable purchases and resold the goods at relatively profitable figures during 1913.

The uncertainty of the market, created by these developments, and the unwillingness of the producers to sell to speculators prevented the refining trade from developing much interest.

The cause of the fact that the number of glycerine houses distilling the refined grades had been augmented materially within the last few years the market for the dynamite and chemically pure grades presented in 1913 very little activity.

The year opened with the market quiet and little business was transacted at the outset of the twelve months, the saponification grade then being valued at 157.50 francs, and the soaplye grades at 150. Buyers were conservative and offers were heavy.

In February some business was effected, the saponification grade selling at 160 francs. The soap makers in that month devoted more attention to the advance in the raw material market than to the sale of their product, for which prices were beginning to advance. The distillers generally complained of heavy re-sales of the refined product as well as of crude glycerine. At the same time the American market appeared to be improving.

Generally speaking, the soaplye market became firmer than that for saponification and while the latter receipted temporarily to 157.50 francs per kilo the former was being sought for at 138 francs and even at 140 francs per kilo.

In March the refined products market showed improvement and business was transacted in the saponification grade at 160 francs and in the soaplye market prices were firmly held at 140 francs. In England business in the soaplye grade was effected at £50. Considerable activity was shown by the commodity and speculative activities intensify the firmness which had been developed previously. The American market continued very firm.

In April only a relatively small amount of business was settled for, although one large transaction was effected in crude glycerine between one of the largest producers and one of the largest consumers at a figure in the neighborhood of £60.

In May the market was characterized by operation of speculators who sought to create wild fluctuations. As a result a good deal of attention was paid to profit taking, and the market continued to weaken in June.

In July prices fell to 150 francs and even to 147.50 francs for the saponification grade while the soaplye variety sold off to 130 francs and even to 127.50 francs. The lowest figures being reached toward the end of the month.

At this period a slight betterment occurred in the American market, European sellers offered only small quantities of their goods and prices advanced again to a slight extent.

In August buyers appeared disinclined to meet the prices which were higher than appeared warranted by consumption, although speculators continued to advance the market.

Toward the middle of the month the strength of the market was intensified and soaplye sellers refused 135 francs per kilo, while the sellers of saponification glycerine in some instances asserted that they had received firm offers at 160 francs. The American market continued to improve from day to day. In general, the buyers of crude glycerine remained out of the market and speculative operations governed the prices asked by the sellers.

At the beginning of September the buyers and speculators paid 160 and 162.50 francs throughout the German markets. A German refiner of the second class failed in business in consequence of his inability to cover commitments which he had made in the distilled grades.

Speculative agitation continued throughout that month and prices advanced rapidly to 165 francs for the saponification grade and to 140 francs to the soaplye grade, while in England producers held firmly at £65 and even at £70 after having reached an agreement among themselves on this subject.

Speculative operations succeeded toward the end of that month in ridding the market of 1,500 tons at approximately 172.50 francs per kilo. The success of this speculative move encouraged a continuance of such operations with the result that there is now a lot of about 1,500 tons to be sold in 1914.

In October the excitement prevailing in the market, then as great as at the inception of the speculating movement began to wain and prices fell to 165 francs, though the market remained fairly quiet up to the end of month. The American market became quieter following heavy sales of the dynamite grade, which had characterized business at the end of the previous month.

Inactivity prevailed throughout the first half of November, although efforts were made to revive interest in the commodity with renewed speculative acitivities. There was recorded in Germany some business effected at 172.50 francs, and a development auguring well for the future was then brought to light in the arrival in Europe of some leading American buyers.

In December the market appeared weak, speculation diminished and offers of goods were made at successively lowered prices, from 173.50 to 165 francs for the saponification grade, and from 145 to 140 francs for the soaplye grade.

AALESUND CODLIVER OIL REPORT.

The 1913 codfisheries at Lofoten commenced under very bad conditions as regarding the weather, and as the livers were leaner than in 1912 the prices on codliver oil very soon turned upwards. The oil percentage was 38 per cent., against 41 per cent. in 1912.

However, the catch of cod improved at the end of March and the beginning of April along the whole coast of Norway, and as the Finmarken codfishery came with a result of 19.596 barrels codliver oil, this, together with the absence of orders from abroad, made the prices on oil to go down again.

The tables beneath show the total production of codliver oil, as well as the export and f. o. b. prices in Norway during the last five years:—

PRODUCTION OF UNREFINED OIL.

	Hectoliters.		Hectoliters.
1909	50,460	1912	76,211
1910	41,024	1913	48,263
1911	43,318		

EXPORTS OF REFINED OIL.

	Barrels of 114 liters.		Barrels of 114 liters.
1909	39,850	1912	61,481
1910	36,991	1913	39,400
1911	39,332		

PRICES, F. O. B. NORWAY.

	Per bbl.		Per bbl.
1909	$14@16	1912	$15@20
1910	25@26	1913	20@30
1911	25@45		

BERGEN CODLIVER OIL MARKET.

The codfisheries of Norway during 1913 were marked by the usual disturbances of weather in the winter months. This was especially the case with the Lofoten fishery. Up to the end of March the total yield of this fishery was 4,500,000 fish with a production of 2,400 barrels oil. By the beginning of April a better spell of weather set in, so that the final yield of the Lofoten fishery reached 9,000,000 fish, with 4,707 barrels crude steam-refined oil.

The following table shows the result of the Lofoten catch in 1913 compared with previous years:—

	Fish.	Barrels of oil.
1913	9,000,000	4,707
1912	15,000,000	10,295
1911	10,000,000	6,558
1910	13,700,000	11,491
1909	16,700,000	17,208

In the Finmarken district the crop came up to 34,800,000 fish, with 19,595 barrels crude steam-refined oil. The following shows this year's catch in Finmarken compared with the last four years:—

	Fish.	Barrels of oil.
1913	34,800,000	19,595
1912	36,700,000	25,000
1911	29,700,000	16,869
1910	23,300,000	11,532
1909	19,200,000	8,281

The returns of all the codfisheries of Norway amounted:—

	Fish.	Barrels of oil.
1913	76,000,000	41,500
1912	99,000,000	65,700
1911	64,000,000	37,300
1910	56,000,000	35,400
1909	56,000,000	43,500

The liver of the fish yielded in 1913 from 30 to 45 per cent. of oil, as against 35 to 50 per cent. in 1912.

In the early part of the season prices were much fluctuating. When it became a fact that the liver of the fish was much leaner than the year before the price of oil jumped gradually and reached about 32c. by April 1. Later on it fell down to 24c., which price was maintained till late in the fall, when it, contrary to expectations, fell further to about 20c. The latter decline was a direct consequence of a small export both to European countries and to the United States.

The total exports for the year amounted to only 40,000 barrels, which is 20,000 barrels less than exported in 1912. This decline is undoubtedly due to the fact that consumers of oil in America, as well as in Europe, covered themselves in 1912 with more than their actual requirements owing to the cheap prices ruling that year.

The stock of oil carried over from 1912 to 1913 was estimated at 40,000 barrels. Considering this year's production in connection with the export there should still be left in Norway a stock of about 40,000 barrels. A great deal of this quantity is, however, oil from 1911, that should by this time be very inferior quality.

NEWFOUNDLAND CODLIVER OIL REPORT.

There has been a marked improvement in the manufacture of codliver oil during the past year. In 1911 the Newfoundland Government secured the services of an expert from the Lofoten Islands, where the finest oil made in Norway comes from.

For the past three years M. B. Simonsen has been visiting all the factories around our coast, and has gained the confidence of the many refiners, who are now ready and willing to follow his instructions in every way.

The Minister of Marine and Fisheries is now intending a further progressive movement that will certainly bring the standard of Newfoundland oil up to the highest level. He has under consideration the establishment of a model factory, where all refiners are instructed in a uniform method of manufacturing oil.

It will be necessary after this for every refiner to obtain a license from the Fishery Department before he can operate a factory. Only competent and careful men will be allowed to manufacture oil for medicinal purposes. The refiners will have to observe certain rules laid down by the Fishery Board or else he will be fined and possibly his license cancelled. This is only one movement among many that the new government in Newfoundland intend to put into operation in the near future.

The Royal Commission appointed by the British Government three years ago, and who have done excellent work in visiting the great Dominions of Australia and New Zealand last year, and who are now spending six months visiting the British possessions in Africa, expect to arrive in Newfoundland next July, where they will remain for about a fortnight before proceeding to the principal cities of Canada.

The following are the members of the commission, and it will be seen that they are the leading men in their respective countries:

Sir Edgar Vincent, chairman; Sir Alfred Bateman, Sir Hilder Haggart, Sir Richard Solomon, South Africa; Hon. Edgar Bowring, Newfoundland; Hon. Donald Campbell, Australia; Hon. Richard Sinclair, New Zealand; Hon. George E. Foster, Canada; Thomas Garnett, Manchester; William Lorrimer, Ireland.

It is expected that the report of this Royal Commission will go a long way to formulate plans to join England's world wide possessions into one vast empire.

The products of the Newfoundland fisheries are now scattered to all parts of the world, but this will be a great opportunity to advertise them. It is expected that codliver oil will come in for special notice with these distinguished visitors as considerable quantities are yearly shipped to the Antipodes.

Mr. Simonsen, in his report to the government at the end of 1913, states that he found a great improvement in the methods of refining among the manufacturers. The livers the past year were of excellent quality, producing an oil of high flavor. The early part of the season was the best, as during the fall, when a godo fishery is expected, it was almost a blank, and proved a great disappointment to all. His main efforts were to get the manufacturers to produce a uniform oil of white color, and in this he has been very successful.

The livers of the codfish were in a fatter condition the past year than in either 1911 or 1912.

The following are the statistics of exports during the past ten years:—

	Gallons.		Gallons.
1903-4	191,403	1908-9	93,780
1904-5	114,506	1909-10	44,307
1905-6	59,781	1910-11	85,999
1906-7	51,547	1911-12	51,277

Chemical Market

NEW YORK.

The past year has proved an eventful one from a chemical point of view, and the market has prompted attention not only for its price changes, but for a readjustment of conditions governing the different items. A new tariff schedule, industrial depression, sharp competition and the invasion of foreign consuming fields are a few of the developments revealed during 1913. Under such conditions consumption has progressed along normal lines, but readjustment in prices of many items was necessary to facilitate selling of the output. Paramount among the feature to the heavy chemical situation was the inauguration of a trade war in soda ash and caustic soda which at one time threatened to demoralize prices. A slow but persistent increase in the production of domestic bleaching powders has lowered prices for that chemical and placed the market on a plane which promises to make it independent of European makers. In the acid department, acetic has been brought to a lower level through the action of the basic material, acetate of lime. Reduced tariff on oxalic has been reflected in a lowering of prices for that item. Tartaric acid advanced in sympathy with argols abroad, but closed weak under the threatened invasion of Continental makers. In the miscellaneous chemicale, acetate of lime prices yielded to tariff influences. Arsenic has drifted steadily downward under keen competition, and a desultory consuming demand. The value of blue vitrol has shrunk under a declining copper metal market. The domestic production of brimstone increased materially, but the output was needed in foreign consuming fields and prices were subjected to no appreciable change. Carbonate of potash was in easy tendency at intervals owing to competition between sellers abroad. Caustic potash was subjected to sharp competition between foreign and domestic sellers, and prices recorded new low levels. Domestic production of caustic potash was also increased materially. Chlorate of potash and chlorate of soda were both reduced from the effects of a new tariff. White granular sal ammoniac ruled comparatively steady, although moderate price changes were effected by the ammoniate market abroad. Crude saltpeter displayed a slight reactionary tendency, but trading throughout the year was confined to comparatively narrow limits. Following is a yearly review of many of the important chemicals, with various tables of prices and other statistical information for comparative purposes. There are also summaries of the important foreign markets..

HEAVY CHEMICALS.

Bicarbonate of Soda.

The gradual opening up of new consuming channels and a steady demand from old consuming sources have been factors significant in taking care of the output, and distributors have been able to maintain prices with a steady degree of regularity. Heavy contracts were placed late in 1912 covering requirements over 1913, but sellers experienced a satisfactory call for additional lots for home and export wants all through the year. The baking powder and lumber industries were reported to be the largest individual consumers. Contract prices were 1c. for bulk, 1.10c. for kegs g. o. b. works and a premium of 15c. is exacted on all deliveries in this section, less the usual discount terms.

Bleaching Powder.

Prices have pursued an irregular course during the past year, and the market has been subjected to periods of keen competition. The gradual increase in domestic production through the expansion of the electrolytic process and attempts of domestic producers to wrest the market from foreign sellers have left prices sliding downward during a greater part of the year under review. In the late summer and early fall competition was unusually sharp, and contracts for 1914 delivery of domestic bleach were placed at prices materially under those of 1913. It is understood that sales were made at 1.10c. and 1c., while unconfirmed rumors were current of sales even below these figures for domestic. German bleach was accepted on contracts at 1.20c., and some business was said to have been placed at 1.15c. English was held at 1.25c. Soft prices in the local market ranged from 1.20@1.40c., the maximum figure being recorded in February, and the minimum in July, August, October, November and December. Soft offerings of bleach under 35 per cent. were obtainable materially under the above figures. Production in this country was estimated at 90,000 tons. Following is a table of spot prices for the past four years. The figures are based on the closing quotatiaons each successive week:—

	1910		1911	
	H.	L.	H.	L.
January	1.30	1.20	1.30	1.25
February	1.30	1.20	1.25	1.25
March	1.30	1.20	1.20	1.20
April	1.30	1.25	1.20	1.20
May	1.30	1.20	1.17½	1.17½
June	1.20	1.20	1.17½	1.15
July	1.25	1.20	1.17½	1.17½
August	1.30	1.25	1.30	1.15
September	1.30	1.25	1.30	1.20
October	1.50	1.35	1.30	1.25
November	1.45	1.30	1.30	1.25
December	1.30	1.30	1.25	1.22½
Year	1.50	1.20	1.30	1.15

	1912		1913	
	H.	L.	H.	L.
January	1.22½	1.20	1.35	1.30
February	1.22½	1.22½	1.40	1.35
March	1.25	1.22½	1.40	1.30
April	1.22½	1.20	1.35	1.30
May	1.25	1.20	1.30	1.22½
June	1.60	1.30	1.25	1.25
July	1.40	1.35	1.25	1.20
August	1.35	1.30	1.20	1.20
September	1.35	1.25	1.25	1.20
October	1.35	1.30	1.25	1.20
November	1.35	1.30	1.20	1.20
December	1.35	1.35	1.22½	1.20
Year	1.60	1.20	1.40	1.20

Caustic Soda.

Price cutting on the part of leading sellers has placed this market in an uncertain position during a greater part of the past year, and buyers were able to secure contracts at the lowest figures ever recorded. During the late summer and early fall a full-fledged trade war was in progress, and at intervals it appeared as though the bottom was going to fall out of the market entirely. In October, however, a firmer tone developed, the eagerness of sellers to cut prices subsidized and the market pursued a steady course over the last quarter. The sharp selling was inspired through the desire of manufacturers using the electrolytic process to compete with sellers of the old style process. It was intimated also that production had increased in greater proportion than the demand. Prices in the late summer were established at such a low basis that makers sought foreign fields for their output and succeeded in placing business estimated at 20,000 tons with the Continent, South America, Australia and Africa. The invasion of the American producer in foreign fields caused some concern abroad and resulted in a lowering of European prices. Domestic production was estimated at 120,000 tons. The year opened with 76 per cent. commanding 1.50c. a pound in drums on the basis of 60 per cent. at 1.60c. f. o. b. works. In April 76 per cent. was reduced to 1.47½c., and in September 1.37½c. on the basis of 60 per cent. at 10 points higher. In October the market was advanced to 1.42½c. for 76 per cent. and 1.52½c. for 60 per cent. These figures remained unaltered.

Sal Soda.

Unlike some of the other sodas, this market continued on a uniform basis throughout the year. Many of the paper mills, color factories and other large consumers held specifications covering the year's requirements, and the bulk of shipments was through standing contract channels. There was always enough additional business, however, to keep the market in fairly animated condition. The selling schedule remained unaltered at 60c. and up in barrels f. o. b. less the usual discount terms. On spot lots of concentrated sellers quoted on the basis of 12½c., and up, according to quantity, seller and terms of sale.

Soda Ash.

This is another item that was brought under the hammer at various intervals during the year and the market has shown considerable irregularity under pressure from leading sellers. There are five large companies supporting six factories who produce soda ash and the keen selling of these factors had a demoralizing effect on the market during the summer and through September. In October, the sharp selling tactics ceased and the market rallied slightly and continued steady over October, November and December. Production was estimated at 675,000 tons, of which about 70 per cent. was absorbed by the glass and soap industries. The textile, paper and other consuming trades consumed a normal amount of the output and all buyers were offered the best figures on record to place contracts. It is stated that some business was placed covering requirements over 1915 but an enormous volume of sales were placed for shipment over 1914. The year opened with light 58 per cent. in bags commanding 65c. per 100 pounds on the basis of 48 per cent. at 75c. f. o. b. works. In April 58 per cent was reduced to 62½c., and in September 52½c. on the basis of 48 per cent. at ten points higher. In October the market for 58 per cent. was advanced to 57½c. on the basis of 48 per cent. at 67½c. for bags f. o. b. works. No further change was recorded

Acetic 28 Per Cent.

Only one change in prices for acetic acid took place during the past year and that was a decline occasioned by the lowering of the acetate of lime market. At the outset 2@2.15c. was quoted for acid in barrels and this price prevailed until the first week in October, when a readjustment to 1.75@1.90c. took place. While demand during a greater part of the year was normal there were few periods of unusual activity in the market and it seems doubtful if consumption was equivalent to that of 1912.

Muratic 17 Degrees.

This market remained uniformally steady throughout the year under review. Consumers derived their supplies chiefly through regular contract channels and production appeared to be well adjusted to equalize demand. Considerable foreign business was placed for West Indian consumption. Carboys sold 1.15c. a pound.

Nitrate Acid 36 Degrees.

A steady demand from the explosive industries kept this market firm at 3⅞c. a pound in carboys. Like muriatic acid, most of the year's business was on contract and there was relatively little feature to trading. The metal trades were interested at intervals but there was always enough stock to meet additional wants without advancing quotations. Latest official figures on production were for 1909 when 138,086,565 pounds were made.

Oxalic.

The drift of oxalic acid prices was slowly but persistently downward throughout the year. The highest prices were registered in March, when sales were made at 8c., but at this time there were constant rumors of tariff reductions to be effected and buyers, anxious to take advantage of any better prices that might materialize, kept their operations mostly on a hand to mouth basis. The reduced tariff took place in the early fall and the market declined rapidly on spot from 7⅝c. to 7¼c. a pound. At the low price there was more or less competition among foreign and domestic sellers although no appreciable change in spot prices took place. Contract shipments over 1914 were accepted at 7@7¼c., according to brand. Laundries were the largest consumers. Domestic production was estimated at 4,000,000 pounds.

Sulphuric Acid 60 Degrees.

Fertilizers consumed most of the sulphuric acid produced during the past year and demand was active enough to keep the market on a uniform trading basis. Latest official figures state that in regard to the production of sulphuric acid the statement is made that during 1912 the total production aggregated 2,339,593 short tons, valued at $18,338,019. In regard to the production of sulphuric acid from copper and zinc smelters it is stated that the quantity at 60 degrees Baume strength in 1912 aggregated from copper smelters 321,156 short tons, and from zinc smelters 292,971 short tons. The total value of this production was of the first, $1,985,704, and of the latter, $2,255,237.

Tartaric Acid.

Only one change in prices was recorded in this item during the year and that was an advance of 1½c. a pound, which took place in September. Prior to this time considerable difficulty had been experienced in securing argots abroad and refiners in this country were pressed to keep pace with standing contract requirements. The advance in the fall did not tend to improve matters, as supplies were very scarce all through the fall months. Toward the end of the year, the effects of the reduced tariff were felt and sellers had to compete with foreign producers. This, of course, checked the advancing tendency and placed domestic distributors on the defensive. No change in values prior to January 1 was made, however.

The subjoined table shows the highest and lowest quoted prices of tartaric acid crystals in the New York market for each month since January, 1910, and also the highest and lowest points touched in each year from 1910 to 1914. The figures are based on the closing quotations each successive week:—

TARTARIC AND CRYSTALS.

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	25½	24½	29½	29¾	30⅝	30¾	30⅝	30¾
Feb.	25¾	24½	29½	29¾	30⅝	30¾	30⅝	30¾
March	25¼	24½	29½	29¾	30⅝	30¾	30⅝	30¾
April	25½	24⅝	29¾	29¾	30⅝	30¾	30⅝	30¾
May	25¾	24½	30⅜	29¾	30⅝	30¾	30⅝	30¾
June	27¼	24½	30⅝	30¼	30⅝	30¾	30⅝	30¾
July	25½	24½	30⅝	30⅜	30⅝	30¾	30⅝	30¾
Aug.	25¼	24½	30⅝	30¾	30⅝	30¾	30⅝	30¾
Sept.	25½	24½	30⅝	30¾	30⅝	30¾	32¼	30¾
Oct.	27¼	24½	30⅝	30¾	30⅝	30¾	32¼	31⅜
Nov.	28¾	27¼	30⅝	30¾	30⅝	30¾	32¼	31⅜
Dec.	28¾	28¾	30⅝	30¾	30⅝	30¾	32¼	31⅜
Year	28¾	24½	30⅝	29¾	30⅝	30¾	32¼	30¾

MISCELLANEOUS.

Alum.

There was no particular feature to this market during the year under review. Demand and supply were so evenly regulated that prices were not subjected to any irregularities. Papermakers, print mills and other large consumers covered their wants by standing contracts and it is asserted that consumption was fully equal to that of 1912. Sales were effected at 1.75@2c. for lump, 1.85@2c. for ground, and 2¼@3c. for powdered grades, as to quantity and seller. Sulphate of alumina is maintained at .90@1¼c. for low grades, and 1¼@1¾c. for high grades, according to quantity.

Gray Acetate of Lime.

Makers experienced a good consuming demand early in the year and the market at the outset was very firm with the prices well established at 2.50@2.55c. a pound as to quantity. Consuming demand remained active until May, when business fell off and production run somewhat in excess of inquiry. This condition brought about an easier feeling, although no change in prices was recorded until the first week in October when makers reduced quotations to 2@2.05c. The invasion tended to stimulate business temporarily but in November and December demand again quoted down and the market closed weak with buyers reserving operations owing to favorable prospects of lower prices. The table below gives the high and low prices of ray acetate of lime in the New York market for each month since January, 1910, and also the highest and lowest points touched in each year from 1910 to 1914. The figures are based on the closing quotations each successive week:—

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	2.05	2.00	1.80	1.75	2.30	2.25	2.55	.250
Feb.	2.05	2.00	1.80	1.75	2.30	2.25	2.55	2.50
Mar.	2.05	2.00	1.80	1.75	2.30	2.25	2.55	2.50
April	2.05	2.00	1.80	1.75	2.30	2.55	2.55	2.50
May	2.05	2.00	1.80	1.75	2.55	2.50	2.55	2.50
June	2.05	2.00	1.92½	1.75	2.55	2.50	2.55	2.50
July	2.05	2.00	1.92½	1.87½	2.55	2.50	2.55	2.50
Aug.	2.05	2.00	1.92½	1.87½	2.55	2.50	2.55	2.50
Sept.	2.05	2.00	1.92½	1.87½	2.55	2.50	2.55	2.50
Oct.	2.05	2.00	1.92½	1.87½	2.55	2.50	2.05	2.00
Nov.	2.05	2.00	2.05	1.87½	2.55	2.50	2.05	2.00
Dec.	2.05	2.00	2.05	1.75	2.55	2.50	2.05	2.00
Year	2.05	2.00	2.05	1.75	2.55	2.25	2.55	2.00

Powdered White Arsenic.

The drift of arsenic prices was downward all through the past year and consumption and production were both below 1912. The highest price recorded for spot arsenic was, in January, when sales were made at 5c. a pound. There was no check to the declining tendency regardless of occasional periods of heavy buying for glass, paris green and other requirements. By November the market had settled to a 3c. basis and this figure could probably have been shaded in December, although there was no real demand to test the market. The output of arsenic in the United States during 1913 was all in the form of white arsenic or arsenious oxide commonly known as arsenic and amounted to about 2,375 tons (short) valued at $142,340 compared with 3,141 tons, valued at $190,757 in 1912, a decrease of 766 tons in quantity and $48,417 in value.

The following table shows the highest and the lowest prices of white arsenic in the New York market for each month since January, 1910, also the highest and lowest points touched in each year from January 1, 1910, to December 31, 1913, inclusive. These figures are based on the closing quotations each successive week:—

	1910		1911	
	H.	L.	H.	L.
January	3¼	2⅞	2.20	2.12½
February	3¼	2⅞	2.12½	2.00
March	2.55	2½	2.00	2.00
April	2.50	2.45	1.95	1.87½
May	2.45	2⅜	1.80	1.75
June	2⅜	2⅜	1.87½	1.50
July	2.30	2.22½	1.90	1.87½
August	2¼	2.22½	1.90	1.75
September	2⅜	2¼	2.00	1.80
October	2⅜	2¼	2.20	2.12½
November	2¼	2¼	2.37½	2.25
December	2¼	2¼	2.60	2.50
Year	3¼	2.22½	2.60	1.50

	1912		1913	
	H.	L.	H.	L.
January	2.62½	2.45	5	4⅜
February	2.75	2.60	4½	4¼
March	2.75	2.75	4⅜	4¼
April	3.75	3.75	4⅛	4.00
May	4.00	3.75	4	3⅝
June	4.12½	4.05	3⅝	3⅜
July	4.25	4.00	3⅜	3⅜
August	4.87½	4.25	3⅜	3¼
September	5.00	4.25	3.25	3.17½
October	5.50	5.00	3.20	3.00
November	5.00	5.00	3⅛	3.00
December	5.00	5.00	3⅛	3.00
Year	5.50	2.45	5	3.00

The change in the character of our import trade in arsenic is well exemplified in the following record, showing the sources during the last three fiscal years ending June:—

	1910. Pounds.	1911. Pounds.	1912. Pounds.
Austria-Hungary	22,046	.....	.....
Belgium	324,859	109,005	370,859
France	1,180	.....	.....
Germany	1,822,065	1,875,045	1,293,480
Portugal	46,938	.....	.....
Spain	112,106	.....	.....
United Kingdom, England	1,410,110	54,921	226,903
Canada	1,902,359	2,865,131	2,956,054
Mexico	824,459	2,120,008	476,854
Totals	6,466,062	7,024,110	5,324,150

Blue Vitriol.

Irregular weakness in the copper metal market has kept sulphate in downward tendency throughout the year 1913. There were few periods of unusual activity, although a fairly steady consuming demand prevailed during most of the year. In January sellers quoted 5½c. a pound for car lots and in February 5¼c. was established. Keen competition during the spring months resulted in business being placed at 5.20c. In August another cut was made to 5c. a pound and in the late fall price shading was evidenced in some quarters and business was accepted at 4.90c. The action of the market was not conducive to extensive individual operations and buyers were inclined to limit transactions to actual wants. Official figures regarding production for 1913 were not available at this writing but it is not believed the out was equivalent to that of 1912. Production for 1912 was estimated at 40,000,000 pounds, against 33,500,000 pounds in 1911 and 26,000,000 pounds in 1910.

The following table shows the highest and lowest quoted prices of blue vitriol for each month since January, 1910, and also the highest and lowest points touched in each year, from 1910 to 1913. The figures are based on the closing quotations each successive week:—

	1910.		1911.		1912.		1913.	
	H.	L.	H.	L.	H.	L.	H.	L.
Jan.	4½	4.10	4	4	4.90	4.90	5½	5½
Feb.	4½	4.10	4	4	4.90	4.90	5½	5¼
March	4¼	4.10	4	4	5.10	4.90	5¼	5¼
April	4½	4.10	4¼	4	5¼	5¼	5¼	5¼
May	4¼	4.10	4¼	4¼	5¼	5¼	5¼	5¼
June	4¼	4.00	4¼	4¼	5½	5¼	5¼	5¼
July	4¼	4.00	4½	4¼	5½	5½	5¼	5¼
Aug.	4¼	4.00	4½	4⅜	5½	5½	5¼	5.00
Sept.	4¼	4.00	4½	4¼	5½	5½	5.00	5.00
Oct.	4¼	4.00	4½	4½	5½	5½	5.00	5.00
Nov.	4¼	4.00	4½	4½	5½	5¼	5.00	5.00
Dec.	4¼	4.00	4½	4½	5½	5½	5.00	5.00
Year	4½	4.00	4½	4	5½	4.90	5½	5.00

Brimstone.

Sales of brimstone at $22@22.50 a long ton have been made throughout the entire year. Demand was normal and about equal to that of 1912, but domestic production is said to have increased to 480,000 tons against some 400,000 tons in 1912. The heavy increase is reported to be due to the large expansion in export trade. Importations from Italy have fallen to 1,792 metric tons compared with 2,125 metric tons in 1912. Domestic consumption is placed at 300,000 tons, while the Dominion of Canada has taken 10,000 tons. Deliveries throughout the year were made promptly and the usual car shortage in the fall failed to materialize.

According to the official report of the Consorzio Obbligatorio per l'dustria Solifera Siciliana of Palermo (Compulsory Sicilian Sulphur Combine) for the seventh working year from August 1, 1912, to July 31, 1913, the total production of sulphur in Sicily was 351,752 tons, against 366,457 tons in 1911-12 and 391,908 in 1910-11. These figures show a gradual decrease during the past two working years, the production declining by 25,451 tons in 1911-12, as compared with that of 1910-11 and by 15,489 tons in 1912-33, as against that of 1911-12.

The failure to reach a normal production of 400,000 tons, as it was anticipated, or at lease that of the working year 1910-11, which was 391,908 tons, is again attributed chiefly to the closing, in 1913, of 7 mines in addition to the 16 mines closed in 1912.

The total sales during 1912-13, including sales for future delivery, amounted to 497,246 tons, against 603,255 tons in 1911-12 and 816,818 tons in 1910-11. On July 31, 1913, there remained to be delivered on sales made 589,477 tons, of which 249,783 tons were booked for delivery during 913-14 and 339,694 tons during the following years.

The total exports declined from 447,-638 tons in 1911-12 to 434,472 tons in 1912-13, as shown by the following table:—

Country.	1911-12, metric tons.	1912-13, metric tons.
United States	7,125	1,792
Africa	13,327	16,175
Australia	12,648	13,944
Austria	37,265	34,543
Belgium	12,152	12,399
British Indies	4,928	5,342
Canada	16	376
Central and South America	7,440	7,624
Denmark	836	395
France	112,897	79,927
Germany	28,869	35,091
Great Britain and Malta	20,764	17,540
Greece	14,762	14,606
Netherlands	12,625	12,518
Norway	3,738	9,016
Portugal	14,185	14,758
Russia	22,838	27,358
Southern Italy	78,954	82,348
Spain	6,952	7,036
Sweden	25,339	28,771
Turkey	834	5,186
Other countries	9,144	7,818
Totals	447,638	434,473

The most striking decline in the exports is that to France, which was always considered the best customer and which took 32,970 tons less than during the preceding year. This decline, the combine believes, is due to the establishment by the Union Sulphur Company of large refineries in that country. On the other hand, the exports to Germany increased by 6,222 tons, to Norway by 5,278 tons, to Russia by 4,520 tons, to Turkey by 4,352 tons, to Sweden by 3,422 tons, which in part counterbalanced the smaller purchases from France. The exports to the United States further declined from 7,125 in 1912 to 1,792 tons in 1913.

The stock on hand on July 31, 1913, amounted to 354,169 tons (against 444,-381 tons on July 31, 1912), of which 250,-548 tons were deposited in the warehouses at Porto Empedocle, 90,001 tons at Palermo, 69,611 tons at Licata, and 3,395 tons at Termini Imerse, in this consular district.

Carbonate of Potash Calcined 80 to 85 Per Cent.

Spot quotations for this channel did not alter materially during 1913. The year opened at 3.40c. a pound and this figure was maintained until October, when moderate resales took place 3.30c. In November this price was shaded to 3.25c. and to other revision was recorded.

During October and November there was keen competition between sellers in Europe and contracts for 1914 were offered to dealers here at 3c. and later at 2.85c. per pound.

Caustic Potash 90 Per Cent.

Sharp competition between foreign and domestic sellers has resulted in a lowering of prices for this chemical. The year opened at 4¼c. a pound and in October the market was established at a 4 cent basis. The announcement that domestic producers would increase their output from 6,000,000 pounds to 20,000,000 pounds attracted considerable attention. Doubt was expressed as to whether the country's yearly consumption is very much in excess of 12,000,000 pounds. According to the record of imports for the fiscal year ending June, 1913, we depended upon foreign sources to the extent of 8,806,805 pounds of caustic potash, not in sticks or rolls, or nearly 400,000 pounds more than our requirements for the previous twelve months. Allowing 6,000,000 pounds as the domestic output, the country's consuming wants would seem to be safely covered under the existing conditions. So far as can be learned, no new fields of magnitude have been developed to stimulate our producers to a more than treble expansion, and while the various soap trades, which are the leading channels of absorption, are undoubtedly taking increasing quantities of caustic potash each year, the growth along these lines is necessarily gradual and is not calculated to demand any extraordinary efforts on the part of our manufacturers or importers to keep pace with the growing requirements. Probably the most reasonable basis for the enlargement of the American production was primarily to play a more representative part in the domestic markets, and with this ambition fulfilled to extend the field of activities to foreign channels. Already the campaign to exploit the American product abroad is said to have reached an effective stage, with sizable quantities going to several of the leading European markets.

The Chlorates.

Only one price change was recorded in chlorate of potash and chlorate of soda during the year. At the outset 8¼c. was quoted for potash crystals and 8¼c. for soda in car lots f. o. b. works. These figures remained effective until October, when prices were reduced 1 cent a pound on each description. The revision was attributed to the passing of the new tariff law. A feature of the potash market was the comparatively low stocks held in local hands for immediate shipment at intervals during the year. Sellers appeared unable to replenish holdings in sufficient volume to satisfy demand, and spot prices were often 1@1½c. above contract figures.

White Granular Sal Ammoniac.

Price fluctuations of spot were confined to relatively narrow limits, and the market was devoid of unusual feature. The ammoniate market abroad was the dominating influence, and during the first half of the year local prices were very firm in sympathy with conditions in the primary market. The local range of spot prices during this period was 6¼c. to 6½c. a pound. Along in the fall there was an easing off abroad and local values settled to 6¼c., where they remained until December, when an advance to 6⅝c. was recorded. At intervals during the year second hands were able to pick up some resale stock, which was disposed of at a slight concession from the above named figures.

Crude Saltpeter.

Trading of limited character is about the best this market could boast of during 1913. Spot prices moved within a half cent range and were covered by 4½@5c. The high figure was recorded in January and the low in September, October, November and December. Calcutta shipments ranged from 3.80 to 4.30c., for lots involving 50 tons or more, the minimum figure being recorded in June and the maximum in November. Refined saltpeter remained steady on the basis of 5¼c. and up according to grade desired, throughout the year. In the following table are given the lowest and highest prices of crude saltpeter in this market during each month of the past five years for purposes of comparison and reference:—

	1909. H.	1909. L.	1910. H.	1910. L.	1911. H.	1911. L.	1912. H.	1912. L.	1913. H.	1913. L.
Jan.	4½	4	4½	4	4⅝	4	4½	4½	5	4⅝
Feb.	4½	4	4½	4	5	4⅝	4½	4½	4⅝	4⅝
March.	4½	4	4½	4	5	5	4⅝	4⅝	4⅝	4⅝
April	4½	4	4½	4	4⅝	4⅝	4⅝	4½	4⅝	4⅝
May	4½	4	4½	4	4⅝	4⅝	4½	4½	4⅝	4⅝
June	4¼	4	4¼	4	4⅝	4½	4⅝	4½	4⅝	4⅝
July	4½	4	4½	4¼	4½	4¼	5	4⅝	4⅝	4⅝
Aug.	4½	4	4½	4¼	4¼	4½	5	5	4⅝	4⅝
Sept.	4½	4	4½	4¼	4½	4½	5	5	4⅝	4⅝
Oct.	4½	4	4½	4¼	4½	4½	5	5	4⅝	4½
Nov.	4½	4	4½	4¼	4½	4½	5	5	4½	4½
Dec.	4½	4	4½	4¼	4½	4½	5	5	4⅝	4½
Year	4½	4	4½	4	5	4	5	4½	5	4½

LONDON CHEMICAL MARKET.

On the whle 1913 was a satisfactory year for the chemical trade. Export demand was very fair (except from the United States) during the first nine months, but orders showed some dropping off in the last quarter; similar remarks apply to business for the home market. In the first three quarters British consumers were able, despite labod troubles, to talke deliveries off contracts with ease and with a fair acquisition of new business works were kept active. In alkalies there has been no marked change in prices to domestic users. Bicarbonate of soda has remained faitnful to £5 12s. 6d. per ton in kegs; bleaching powder to £6 @ £6 5s.; soda crystals to 42s. 6d. in bags; potassium chlorate to 3½d., and caustic soda to £10 for 70 per cent. white and £9 for 60 per cent. In the latter article, however, for export concern was aroused by American attacks on certain markets abroad and as a result export rates to Australia and New Zealand were reduced in November by 25s., and to South Africa by 20s., price to the latter becoming £8 for 70 per cent., and £7 for 60 per cent., with 5s. less on each grade for Australia; there was also some reduction for South American markets. U. S. A. makers also threatened to assail the home market and unsettled conditions accordingly prevailed for a short time, but partly through the uncertainty of deliveries on c. i. f. contracts their competition was not very acute and no change in the schedule of domestic supplies was necessary. Caustic potash trade has been good, but prices receded about 10s. and there have been further concessions offered purchasers by way of securing long-period contracts.

In the following table are listed some of the more noteworthy changes in articles usually quoted on the London market:—

	Open. £	s.	d.	Close. £	s.	d.
Ammonia sulphate...ton	13	12	6	12	0	0
Arsenic 99-100% Cornish, in barrels.....ton	25	0	0	14	0	0
Benzole, 90%.....gal.	0	0	10½	0	1	1
Boracic acid crystals, cwt.		0 26	0		0 28	6
Borax crystals.....cwt.		0 17	0		0 17	6
Carbolic acid—						
Crude, 60%.....gal.	0	2	3	0	1	1
Crystals, 39-40%....lb.	0	0	6	0	0	3½
Copper sulphate, Liverpool .....ton	24	17	6	22	0	0
Cream of tartar, 98%. cwt.		0 87	0		0 93	0
Oxalic acid.....lb.	0	0	2⅞	0	0	2⅝@3
Potashes, Montreal firsts, cwt.		0 38	0		0 39	0
Potassium, prussiate, foreign .....lb.	0	0	6¼	0	0	5⅞
Quicksilver, importers', bottle	7	8	6	7	10	0
Soda nitrate, refined.ton	12	5	0			
Tartaric acid, foreign.lb.	0	1	0⅜	0	1	0¼

	High. £	s.	d.	Low. £	s.	d.
Ammonia sulphate...ton	13	15	0	12	0	0
Arsenic 99-100% Cornish, in barrels.....ton	25	0	0	13	0	0
Benzole, 90%.....gal.	0	1	2	0	0	10½
Boracic acid crystals, cwt.		0 28	6		0 26	0
Borax crystals.....cwt.		0 17	6		0 17	0
Carbolic acid—						
Crude, 60%.....gal.	0	2	4	0	1	0¼
Crystals, 39-40%....lb.	0	0	6¼	0	0	3½
Copper sulphate, Liverpool .....ton	24	17	6	21	0	0
Cream of tartar, 98%. cwt.		0 96	0		0 87	0
Oxalic acid.....lb.	0	0	3	0	0	2⅝
Potashes, Montreal firsts, cwt.		0 40	0		0 38	0
Potassium, prussiate, foreign .....lb.	0	0	6½	0	0	5⅞
Quicksilver, importers', bottle	7	15	0	7	5	0
Soda nitrate, refined.ton				11	5	0
Tartaric acid, foreign.lb.	0	1	1	0	1	0⅛

Ammonia sulphate was in plentiful supply and steadily declined until the beginning of August, when a firmer condition established itself until October, after which there was a further easing off to the lowest at the close. Carbonate and muriate of ammonia have sold in moderate quantities and values have declined about 5 per cent.; in the autumn 1914 contracts for carbonate were booked at the prices which had been ruling since June last, viz., 3¾d. for lump and 4d. for powdered in casks, less 5 per cent., with the usual 1 per cent. extra discount to distributors, kegs carrying a premium of ⅛d. White arsenic has been very plentiful and continually drooped on a smaller foreign demand, especially from the United States. Benzole gradually improved in value under the influence of expanding requirements for motor propulsion, to meet which the coke ovens made a large output. Borax had one and boracic acid had two advances, reflecting the higher cost of labor, freight and raw material. Carbolic acid lost about 50 per cent., both in crude and crystals, the decline being in continuance of that of 1912 from the high status attested in 1911; there has been overproduction from the coal-tar fraction and competition from the synthetic crystals. Copper sulphate declined during the first quarter, made some small recovery in the second, which, however, was not maintained, touched bottom in July, sharply advanced in August and September, but gradually lost the advantage; the exports showed a substantial decline. Short supplies, through difficulties with raw material, were responsible for 96s. being scored in September for cream of tartar, which thereafter was a strong market, weakening somewhat, however, towards the end. Tartaric acid has moved over only a very narrow range. Potassium prussiate has varied in buyers' favor. Montreal potashes finished as they begun. Carbonate of potash receded in the first six months, but stiffened again on unfavorable Russian crop reports. Alum showed no departure from £6 7s. 6d. for lump and £6 17s. 6d. for powdered. Sulphate of iron adhered in the main to 42s. 6d. per ton, with occasional relapses to 40s. Acetic acid (99 to 100 per cent. glacial) started the year at £38 per ton and finished at £35 10s., acetate of lime being more plentiful. Bichromate of soda was unchanged at 3d. per pound for quantity. English red lead was quoted at £20 10s. on January 1 and at £19 10s. on December 31 (when foreign was £19 5s.). White lead, which is controlled by a convention, stood at £25 15s. at the beginning of 1913 and at £24 10s. at the end.

ANTWERP CHEMICAL MARKET

Bleaching Powder has been rather uneventful and prices moved generally from 13 @ 13.50 francs. Deliveries have been fairly good under contract and demand steady.

Sulphate of Copper has been high in price all the time and from 58 @ 62 francs have been currently realized for spot and forward delivery, but business generally slack. In November-December prices lowered a little, following the course of the metal, to 55 @ 56 francs for prompt and spring shipment, with but little business doing.

Chlorates were dull at 80.50 @ 82 francs. Syndicate's price according to quantities; for 1914 same prices were being quoted however fair quantities were sold.

Rock Sulphur was steady and from 12.75 @ 13.50 francs has been obtained; the consumption of the article appears to have increased.

Arsenic has been scarce and a very irregular market in the beginning of the year, when it has been freely sold from 52 @ 55 francs for White powder. It has been meeting with a fair inquiry, but has been distributed by the renew weakness of the market. In November-the position has improved and sales have been made for early and forward delivery at 34 @ 35 francs.

Prussiates of Potash and Soda have been very high in price, and from 130 @ 150 francs have been paid for Potash, whereas Prussiate of Soda was very low in stock and found a ready sale from 90 @ 105 francs. The market had a very firm tone and there is no prospects of lower prices.

Potash, both Caustic and Carbonate, has been rather neglected and slow of sale, and prices declined some 4 @ 5 francs. Carbonate of Potash 90 per cent. was selling around 35 @ 39-40 francs and Caustic 88-90 per cent. 55 @ 51 francs. The market shows no improvement, though it has been more inquired for in the last time and good sales have been made over 1914.

Bichromates have been inactive and conventional prices remained unchanged at 79@69 francs for Potash and Soda respectively, and continue to meet with but little inquiry.

Borax has been but little called for, and is at 43.75 francs for crystal and 46.25 francs for powder, conventional prices.

Oxalic acid was meeting with a fair amount of inquiry and generally scarce on the spot, at around 64 @ 66 francs, with lower prices being quoted for 1914. Business on the whole was fairly satisfactory.

Acetates of lime were rather scarce and 32.50 @ 33 francs for grey 80 per cent. and 19.50 @ 20 francs for brown were about current values; but in October-December market got weaker and demand slack and prices went down to 26 francs for grey and 17 francs for brown.

Acetate of Soda has been dull and 39 @ 37 francs was being quoted, with a downward tendency.

In Lead Salts, white Acetate was generally firm around 60@65 francs. Nitrate of Lead at 70 @ 75 francs, and have been in good request. The demand for brown has been very quiet and the consumption of the articles seems to be falling off. Prices generally quoted were from 57.50 @ 60 francs.

Green Copperas has been inactive and general request and price was firm from 3.75 @ 4 francs in bulk, with a fair amount of business.

Ammonia and Ammonia Salts kept generally firm for prompt and forward delivery. Demand for Muriate of Ammonia was rather slack, and market irregular at 60 @ 68 francs. In December prices had a lower tendency with but a little business doing. 59 @ 60 francs was freely offered.

Tin, Zinc and Lead Salts had a somewhat lower tendency and were in moderate request.

A very fair amount of business in Chemicals is reported to have been done against end of the year; inquiries have been made more freely, and a cheerful tone prevails in the market, caused by the belief, that trade will continue active through the first three or four months of 1914. The note of the year 1913 has been a moderate business and a general decline in prices. There are no official statistics available to show amount of business done, but from trustworthy information from commercial sources it is learned that it was not so favorable as foregoing years.

Fertilizer Markets

NEW YORK.

A decided improvement was reported in the fertilizer trade, as compared with the business done in 1912. Manufacturers of mixed goods had a good call for their offerings, both for the spring and fall seasons, and this in turn was followed by a good demand for the raw materials.

Prices for the important nitrogenous materials, nitrate of soda and sulphate of ammonia, were on a downward tendency. Various reasons were assigned for this, but in each case a fundamental reason is found in the preponderance of production over consumption. Fish scrap failed to live up to expectations and consequent yield of fish scrap was said to be only a little more than one-half that of 1912.

A review of the fertilizer industry was made by the Department of Agriculture, and a monograph was issued in which attention was called to the great waste of fertilizer material as a result of only 25 per cent. of tankage developed in the country being made available, while the loss in products in the distillation of coal amounts to millions of dollars' worth.

It is stated that 75 per cent. of the highly valuable fertilizer material which might be produced from the slaughtering of food animals in the

country districts is permitted to go to waste, and that approximately $22,000,000 worth of ammonia, from which ammonium sulphate might be obtained, is allowed to go to waste annually in the manufacture of coke by the beehive type of coke oven.

An estimate is made by the officials that approximately 222,000 tons of tankage and 79,000 tons of dried blood are produced in the country slaughter houses which might be utilized as fertilizer material. The nitrogen content of tankage is stated to vary from 5 to 8 per cent., and the phosphoric acid content between 5 and 12 per cent.

Nitrate of Soda.

Interesting developments arose in the nitrate trade during the year. The history of prices is one of almost constant declines and at the close of the year prices were quoted 40c. per 100 pounds lower than in January. These important factors contributed to the decline in values for nitrate. In the first place, there was not the expansion in consuming demand which had been expected. Secondly, production was on a large scale and exceeded past records in the trade. The third factor which had a decided bearing on market prices was the decline in ocean freights. The high price of the year for nitrate in domestic markets was $2.60 per 100 pounds, while at one time late in the year nitrate sold at $2.05 per 100 pounds. The year closed with $2.20 per 100 pounds as the ruling quotation. At times in the home markets, prices were below the parity of values on the West Coast. The reason for this is found in the fact that large stocks were held in this country and the entrance of a new selling factor whetted competition to a point hitherto unknown and values were sacrificed in order to keep business in the regular channels, or to divert orders to the new importer, as the case might be.

While figures representing world's consumption of nitrate vary with 2,465,000 tons as a minimum and 2,620,000 tons as a maximum, the total in either case must be considered as a bearish factor on prices since production reached a total of 2,730,105 tons. Several new officinas began operations during the year, but their combined output was small and the increase in the production is not attributed to that cause. A feature, disappointing to the producers, is the fact that production showed an increase in spite of an agreement entered into by many mine owners, who agreed to curtail production for a period of six months beginning with August. With the close of the year this agreement had run five of the six months and the result was not in accord with the plans of the mine owners who had established 90,000 tons as the amount to be cut off from the normal output during the six months. As the months went by it was seen that the plan was a failure in its operations and the reduction in output would be nearer 10 000 tons than 90,000 tons. A factor which worked against the success of the plan was that all mine owners were not in the combine and mines, especially in Taltal and Taco, showed a large increase in their output.

Ocean freights also were of an easy tendency through the year and while charters were quoted at 38s. in January, this figure had declined to almost one-half that sum. Cost of nitrate on the West Coast also showed a loss at the end of the year, as compared with the prices asked in January. Prompt shipment at the beginning of the year was held at 8s. 3d. per Spanish quintal, and a high point of 8s. 5d. per quintal was reached in February. But in July the quoted price read 7s. 5d. per quintal. Later on there was a recovery and the year closed with holders asking 8s. per quintal, though this figure undoubtedly could have been shaded in actual transactions.

Consumption of nitrate of soda reached a large total in this country, but cannot be measured by the figures of imports since there were large amounts of nitrate carried over into the new year. The figures of imports show that a larger amount of nitrate was received into the United States than in any previous year in the history of the trade. Imports, in tons, during each month of the year, with comparisons, were:—

	1913	1912.
January	37,119	44,564
February	27,541	35,488
March	64,694	25,503
April	75,715	.....
May	86,976	54,713
June	66,176	57,950
July	53,726	55,067
August	51,742	11,801
September	61,142	25,389
October	16,145	56,418
November	47,709	62,329
December	57,177	19,911
Totals	625,862	486,352

The progress of the industry as shown by the figures of production and consumption is as follows:—

	Production, tons.	Consumption, tons.
1902	1,351,000	1,259,000
1903	1,462,000	1,412,000
1904	1,535,000	1,447,000
1905	1,728,000	1,547,000
1906	1,795,000	1,636,000
1907	1,818,000	1,658,000
1908	1,940,000	1,732,000
1909	2,077,000	1,938,000
1910	2,427,000	2,241,000
1911	2,482,000	2,355,000
1912	2,540,000	2,504,000
1913	2,730,105	2,553,260

The following table gives a comparison of the production, by months, during 1913 and 1912:—

	1913. Tons.	1912. Tons.
January	234,720	214,400
February	199,258	191,390
March	235,022	208,100
April	225,000	195,000
May	237,600	200,000
June	230,000	211,470
July	240,720	218,440
August	242,280	221,400
September	206,122	196,110
October	228,690	229,650
November	222,000	228,300
December	228,693	240,000
Totals	2,730,105	2,553,260

The following table gives a statistical review of the industry for the past two years:—

	1913. Tons.	1912. Tons.
Production	2,739,450	2,555,200
Shipments—		
Europe (including Egypt)	1,955,300	1,891,000
United States	644,760	482,580
Other destinations	88,360	91,170
Total shipments	2,688,420	2,464,750
Deliveries—		
Europe (including Egypt)	1,816,170	1,925,590
United States	560,010	469,100
Other countries	88,360	91,170
Total deliveries	2,464,540	2,485,860
Stocks in Chili, Dec. 31	473,000	495,200
Stocks in Europe, Dec. 31	374,410	309,910
Afloat for Europe	722,510	658,690
Visible supply, Europe, Dec. 31	1,096,920	968,600

At a meeting of nitrate producers held at Iquique on November 13 it was decided to transfer to Valparaiso the management of the association as from March, 1914, while maintaining a delegate at Iquique. The producers are trying to reduce the production of nitrate by four million quintals in 1914, in view of the decrease in consumption. The Nitrate Council has decided that preference shall be given in future sales of government nitrate lands to Chilean purchasers in order to stimulate the movement towards the nationalization of the industry.

Sulphate of Ammonia.

The outstanding feature in the market for sulphate of ammonia has been the report of increased production in many countries. Due to the effect of these reports and to the position of competing nitrogenous materials, prices for sulphate of ammonia declined during the year. At the opening of the year the market quotations was $3.25 per 100 pounds, while at the close the price was weak at $2.97½c. per 100 pounds. It is reported that world's consumption of sulphate of ammonia has expanded. In 1908 about 62 per cent. of the nitrogen used by the fertilizer trade came from nitrate of soda. Last year estimates credit 55 per cent. of the nitrogen so used to nitrate of soda and 40 per cent. to sulphate of ammonia, the balance being supplied by the newer nitrogenous materials. The growth in production, however, has been much greater than the growth in consumption, hence the present condition of the market.

World's production of ammonia in 1913 reduced to sulphate of ammonia equivalent was as follows:—

	Tons.
United States	195,000
United Kingdom	420,000
Germany	550,000
France	75,000
Belgium	51,000
Other countries	150,000
Total	1,439,000

The increase in production of sulphate in Germany has been of considerable importance as it caused offers of German sulphate to be made in domestic markets in competition with English makers. At the end of the year it was reported that competition was becoming keener on the part of two groups of manufacturers in Germany and this was expected to have a depressing effect upon prices in the new year.

The quantities of sulphate of ammonia manufactured in Germany were estimated to have been 500 000 tons in 1912, worth 125,000,000 marks ($20,750,000), and 418,000 tons in 1911, having a value of 98,000,000 marks ($23,324,000). Of this large quantity the German ammonia combination in Bochum disposed of about 300,000 tons in 1912, and about 245,000 tons in 1911. The producing concerns in Upper Silesia, Rhinland, and Westphalia are said to be quite willing to engage in a competitive contest, claiming that the cost of manufacuring artificial ammonia is more than the cost of producing ammonia in the coke and gas works.

The export trade of the United Kingdom showed a gain during the year, but the increase was smaller than the gain in production, and the failure of outside countries to draw more heavily upon English stocks had a rather demoralizing effect upon the market. Exports from the United Kingdom compare as follows:—

To—	1913. Tons.	1912. Tons.
Germany	9,388	1,483
France	8,964	7,065
Spain and Canaries	60,877	66,731
Italy	5,822	13,542
Dutch East Indies	38,046	33,600
Japan	14,684	86,659
United States	37,067	39,333
British West Indies	10,050	8,738
Other countries	39,806	28,753
Totals	324,704	286,864

Domestic consumption increased by 28,000 tons during the year, the figures for 1912 being 165,000 tons and for 1911 127,000 tons.

Imports of sulphate of ammonia into the United States by months for the past two years were as follows, the figures representing pounds:—

	1913. Pounds.	1912. Pounds.
January	19,900,131	19,289,216
February	14,430,153	14,025,623
March	11,680,720	6,029,094
April	7,021,393	8,568,757
May	1,331,871	1,589,456
June	2,218,256	1,514,857
July	15,485,488	1,543,921
August	2,944,898	5,471,318
September	3,399,466	5,203,796
October	10,350,616	18,321,630
November	18,384,196	20,478,599
December	27,193,843	17,048,135
Totals	131,550,031	119,084,402

Fish Scrap.

The catch of menhaden during the 1913 season was practically a failure, as it fell almost forty per cent. below the totals for the previous year. The effect of the smaller catch was reflected in market values for fish scrap, which were at such prices late in the year that the material was prohibitive and was brought only by such manufacturers as required scrap for making up certain brands of fertilizers. High prices prevailed through the year, as the fishing season was disappointing from the beginning. Early in the season scrap was quoted at $2.75 f. o. b. works for delivery later in the year, but when the total catch gave promise of faling behind expectations, prices were revised upwards and later in the year the market was hardly more than nominal, with $3.25@3.60 quoted f. o. b. Southern works. An interesting report on the menhaden industry on the Atlantic Coast was published by the Bureau of Soils. This report stated that the annual catch has varied, the variation being determined as much, perhaps, by the success of the fishermen—"fishermen's luck"—as by the status of the industry, and the annual output in oil and scrap has not varied greatly from 70,000 tons of scrap and 36,000 barrels of oil. There has not been that growth in the past which would warrant a belief in a growth in the future.

During the last year there was quite an impetus noted in the industry, due largely to the very successful season of the preceding year. While there were a number of new plants under construction or beginning operations in 1912, whose establishment was attributable only to the prosperous season of 1911, there were others which did not share in this prosperity and were either out of commission or in the hands of receivers.

The greatest change in the fish-scrap industry of the last twenty-five years has been the introduction within recent years of improved machinery for manufacturing the scrap. The success of this move has been pronounced. This success has been almost too recent to enable one to say what effect it will have on the industry. But since the main expense involved in the industry lies in the operation of the boats and the main profit in the success of the boats, it is evident that changes in the factory proper cannot have a far-reaching influence on the industry as a whole.

Phosphate Rock.

A series of reports was received during the year by the officials of the Bureau of Foreign and Domestic Commerce. These reports gave data regarding phosphate mining in different countries.

In regard to the phosphate in Algeria the statement is made in a report from Algiers that phosphate production had increased up to 555,000 tons in 1912. In regard to the manufacture of fertilizers and the prices, this report from Algiers says that one company constructed a plant at Bone some six years ago for producing superphosphates by treating crushed phosphate rock with sulphuric acid. Plants have been subsequently established near Algiers and Oran. The company which manufactures the sulphuric acid used at its works is doing a satisfactory business and produces the greater part of the phosphate fertilizer used in the country.

Algerian mining companies sell their phosphate rock c. i. f. at the important European markets at prices which were on July 4, 1913, as follows:—For 63 to 68 per cent. phosphate, at British ports and Hamburg, 11 1-3 cents; Italian ports, 11 1-5 cents; Antwerp, 11.6 cents. For the 58 to 63 per cent. phosphate the prices at these respective places were 11 cents, 10.8 cents and 10.8 cents. Sales are on the metric tons—2,204.6 pounds—basis and the price is obtained by multiplying the percentage of phosphate in rock by the current rate paid. Thus the price in Great Britain for rock containing 65 per cent. of phosphate would be $7.37 per ton.

In a report regarding phosphate on the Pratas Island, it is stated that it now seems to be well settled that the large and valuable phosphate beds on the Pratas Islands are to be fully exploited in the immediate future. A syndicate of Chinese from Singapore and Canton, known as the Tong San ton or Pratas Island Phosphate Syndicate, Ltd., has been formed with considerable capital, under the direction of Mr. Tan Bo Liat, who holds a concession from the Chinese Government to work the deposits.

Pratas Island, or islands, also known as the Pratas Island shoals, lies or lie about 170 miles south of Hong Kong, on the way to Manila. The islands have long been known to be rich in phosphate deposits, and several years ago a Japanese syndicate was formed for exploiting the deposit on the ground that the islands were no man's land. Their work led to a protest from the Chinese Government on representations from the provincial government at Canton, the islands being claimed as Chinese territory. The syndicate had constructed a considerable establishment on the islands, including extensive sheds and other buildings, light railway lines and a pier. After considerable discussion the matter was settled by the Chinese authorities indemnifying the syndicate for its investments and taking over the plant. The concession from the government to the new syndicate provides for a division of profits from working the deposits. The beds of phosphate in sight promise a monthly output of 2,000 tons for forty years.

Demand for phosphate rock in domestic markets was of a quiet and routine nature. Prices were easy throughout the year and prices were lowered on some selections. High ocean freights in the first part of the year were unfavorable for the export trade. Exports of phosphate rock during the calendar year together with comparisons were:—

	Tons.	Value.
1913	1,366,508	$9,996,580
1912	1,281,107	11,036,451
1911	1,299,478	10,898,330
1910	1,124,843	9,452,337

Potash Salts.

There have been but few features of new interest in the domestic trade in potash salts during the year recently closed. Large consumers are covered ahead by contracts placed when the controversy with Germany was settled at the close of 1911, and they are receiving shipments against these contracts. Interest has been shown in reports of deposits of potash salts in this country, but as far as commercial results go, the attempt to locate a home supply have proved a failure. It was reported late in the year that deposits of potash salts were found in the province of Catalonia in Spain. It is reported that these deposits are very valuable and are similar to those in Germany. Another report has come to hand regarding potash deposits in India. It is stated that the principal potash-bearing bed in the Pharwala section averaged 6 feet in thickness, and the potash content varied from 6.8 to 9.6 per cent.

Reports from Germany showed that the Potash Law was not working very satisfactorily for under its protection, numerous new mines were opened up, and the restriction of output caused some of the mines to work on a scant margin of profit, and the effect upon the industry at large was shown in much lower values for the potash shares. A bill is being prepared to take the place of the present law and no doubt something will be done during 1914 to improve the status of the industry.

Sales of potash in 1913 are reported to have reached a total of $45,500,000, or a gain of $3,330,000 over those of 1912. With reference to the amount of potash authorized by the German Potash Distributing Bureau to be sold during 1913, the bureau decided to increase the amount for home consumption from 5,555,700 metric centners of pure potash to 6,065,300 metric centners, and the amount for export from 5,042,000 metric centners to 5,195,400 metric centners, making an ultimate total of 11,260,700 metric centners for the year.

Imports of potash salts into the United States for the calendar year compare as follows:—

	Tons. Kainit and manure salts.	Pounds. Muriate of potash.	Pounds. Sulphate of potash.
1913	689,140	478,826,857	88,565,073
1912	683,202	428,265,665	97,161,010
1911	737,852	509,119,173	121,039,192

The following schedule of prices has been established for potash salts for 1914 delivery:—

Muriate of potash, 80@85 per cent., basis 80 per cent.	$39.07
Muriate of potash, min. 95 per cent., basis 80 per cent.	40.75
Muriate of potash, min. 98 per cent., basis 80 per cent.	41.65
Sulphate of potash, 90@95 per cent., basis 90 per cent.	45.57
Sulphate of potash, min. 96 per cent., basis 90 per cent.	48.14
Double manure salt, 48@53 per cent., basis 48 per cent.	25.04
Manure salt, min. 20 per cent., actual potash, in bulk. In bags of 200 pounds net, no charge for bags.	13.58
Hardsalt, min. 16 per cent. actual potash, in bulk	10.87
Kainit, min. 12.4 per cent. actual potash, in bulk. Per 2,000 pounds net weight.	8.36

CHICAGO FERTILIZER MARKET.

By being greater in value and smaller in tonnage, the fertilizer trade at Chicago in 1913 met with the expectations of operators in animal ammoniates.

High prices had been forecasted for the year and they were realized, values at one time being among the highest ever known by the trade. Handlers who recognized the inroads being made in the consumption of tankage for fertilizer by the increased use of the material for live stock food also presaged a falling off in the volume of

business in animal ammoniates at Chicago, and they, too, had their prophesies confirmed during the course of the year just closed.

One result of the latter development, the taking away of a great deal of tankage from the fertilizer trade, was the readjustment of relative values between blood and tankage and the close of the year found the latter selling at a discount of only 5 cents per unit of ammonia under blood, whereas there existed a difference of 20c. in the prices of the two commodities a year previous.

According to a well recognized authority, there has been a decrease of approximately 20 per cent. in the northern and northwestern production of tankage this year, as compared with that of 1912. Besides, owing to a controversy between the city of Chicago and the reduction company handling that city's garbage, which resulted in the condemnation of that company's reduction plant, the production of garbage tankage at Chicago during the year 1913 was estimated to have been 20,000 tons short of the preceding year's output.

Combined with these two factors, the consumption of tankage for hog feeding is said to have increased 30 per cent. in the last year, serving further to increase the shortage of tankage available for the manufacture of complete fertilizers.

A big factor in reducing the year's volume of business was the high cost of materials. Blood, for instance, opened the year at $2.60 and worked almost steadily upward, until an extreme price of $3.30 f. o. b. Chicago was reached in December. The low price, $2.60, was 25c higher than the lowest figure touched in 1912, while the highest price for 1913, $3.30, surpassed the previous year's best figure by 45c. Ground high grade tankage reached high point in the first week of December, when sales were made at $3.65@10 f. o. b. Chicago. This price was 60c higher than the best figure made the previous year.

The upward movement of blood and tankage prices was almost continuous, from the beginning of the year to the close, but most decided gains were made in the early fall of the year, before the autumn and winter buying season got in full swing. As a result, manufacturers of complete fertilizers adopted a policy of strict economy so far as their purchases of blood and tankage were concerned, using only such quantities as were absolutely necessary to give their finished product the required body and substance.

They also bought blood and tankage as current needs required, and less advance business was done in 1913 than in any previous year in the annals of the trade, while the fall and winter business as a whole was exceptionally limited, as the high prices encouraged unprecedented use of cheaper substitutes.

Following table gives the monthly range of prices of ground high grade tankage f. o. b. Chicago during the last two years:—

	1913		1912	
	High.	Low.	High.	Low.
Jan.	$2.42½&10	$2.40 &10	$2.45 &10	$2.37½&10
Feb.	2.45 &10	2.42½&10	2.35 &10	2.25 &10
Mar.	2.55 &10	2.47½&10	2.27½&10	2.20 &10
Apr.	2.65 &10	2.60 &10	2.25 &10	2.12½&10
May	2.52½&10	2.47½&10	2.25 &10	2.17½&10
June	2.47½&10	2.45 &10	2.30 &10	2.25 &10
July	2.40 &10	2.32½&10	2.35 &10	2.32½&10
Aug.	2.40 &10	2.37½&10	2.35 &10	2.35 &10
Sept.	2.70 &10	2.45 &10	2.32½&10	2.30 &10
Oct.	2.85 &10	2.75 &10	2.32½&10	2.32½&10
Nov.	3.05 &10	2.90 &10	2.32½&10	2.32½&10
Dec.	3.10 &10	3.05 &10	2.42½&10	2.35 &10
Total range	3.10 &10	2.32½&10	2.45 &10	2.12½&10

As shown in the above table, September was an excited month, with values advancing 25c. per unit of ammonia during the course of that period. This upturn was followed by a 15c. bulge in October and a further advance of 20c. in November, a net gain of 60c. being registered in the three months, which meant a wider fluctuation in three months than was recorded in the entire year of 1912.

The lowest spot of the year was touched in July, during the dull summer season, when the trade looks for a sagging and inactive market. At that time sales were made as low as $2.32½ and 10 Chicago, which was 77½c. lower than paid at the high point in December, five months later.

Following table gives the monthly range of prices of ground dried blood at Chicago for the last two years:—

	1913		1912	
	High.	Low.	High.	Low.
Jan.	$2.62½	$2.60	$2.85	$2.77½
Feb.	2.65	2.60	2.75	2.65
March	2.80	2.65	2.65	2.60
April	2.85	2.82½	2.55	2.42½
May	2.80	2.70	2.45	2.37
June	2.67½	2.65	2.50	2.47½
July	2.65	2.60	2.55	2.52½
Aug.	2.70	2.65	2.55	2.55
Sept.	2.80	2.70	2.52½	2.50
Oct.	3.05	2.90	2.52½	2.52½
Nov.	3.20	3.05	2.52½	2.50
Dec.	3.30	3.05	2.52½	2.50
Year's range	3.30	2.60	2.85	2.35

This table shows the low point to have been at the beginning of the year and again during the summer months, while the month of greatest activity in prices was October, in which values fluctuated within a range of 15c. The spread for the year between the lowest and the highest figure is 70c., compared with a range of 50c. in 1912.

At the close, the market was in a strong, healthy condition, with dealers looking for prices of animal ammoniates to continue their upward climb, because of the increased demand made upon producers and the limited reserves held against the possibilities of a material falling off in the production during the coming year.

BALTIMORE FERTILIZER MARKET.

The results of the fertilizer trade of this city for the last year are available and they do not constitute an exhibit over which the manufacturers at least will grow enthusiastic. With them it was largely a case of meeting competition and of trying to hold their own. To be sure, the trade appears to show some increase, as is indicated by the gains in the imports of crude materials, but the business of the producers of mixtures was not at all satisfactory, either in point of volume or in returns. They experienced serious disappointments and fell far short of their early expectations with regard to the amounts of money made. In fact, it may be doubted, whether the manufacturers as a whole were able to end the year with a balance on the right side of the ledger, profits having been cut both by competition and by unbooked for advances in the price of crude stocks, among them animal ammoniates.

The trade entered upon the year 1913 with high hopes of a large movement and some widening of the margins of profit which have been close ever since fall, when unusual activity with respect to factory building so augmented the productive capacity as to run far ahead of the normal gains in the business in crude mixtures. The newcomers in this territory, seeking business, naturally cut prices, and the manufacturers already established, determined to keep their trade, followed suit. The year 1912, therefore, was one to try the resources of the manufacturers severely, and they entered upon 1913 with little or nothing to show for a year's effort and enterprise.

The year recently ended began rather auspiciously and for a time there were indications that the distribution would not merely amount to the normal increase of about twelve per cent. a year, but run far ahead, taking up to a considerable extent the increase in capacity and almost, if not quite, restoring the balance between output and distribution for this territory. But the spring of 1913 proved unusually rainy and cold, the farmers being considerably delayed in getting their crops into the ground. This held back the movement of fertilizer mixtures and reacted on prices, which had shown some signs of an upward trend. Upon the heels of a rainy spring, with such developments as devastating floods along the Ohio and Mississippi River valleys, as well as in the South, came an uncommonly dry summer. Crops dried up, and many of them proved a complete failure, while others were much reduced. The unfavorable climatic conditions continued so long that there was little or no time for replanting and no opportunity was afforded to the manufacturers to make up for the previous deficiency in the demand by a corresponding excess. The pressure to sell, however, remained, the manufacturers being out for orders and offering concessions to place their goods.

This condition continued throughout the greater part of the year, being emphasized also by the prevailing political conditions which gave rise to a general feeling of uncertainty and tended to restrict the demand for all kinds of merchandise. The financial situation likewise occasioned some uneasiness and created difficulties that increased the strain upon the manufacturers, and that they have been enabled to weather the year in good shape is a fine tribute to their strength and to the ability with which their affairs have been handled.

But the manufacturers of mixtures were not alone in their trials, the menhaden fishing companies along the lower bay getting their share of hardships, for the last fishing season proved to be one of the worst in the experience of the industry. Because of the heavy rains and the cool weather, the season opened late, and throughout practically the whole summer the catch of menhaden was very small. Various explanations for the failure of the fish to appear were given, but the fact remains that no matter what the weather, the catch continued very limited and the final showing proved almost disastrous. For a time the fishermen consoled themselves with the belief that with sunshine the fish would come out, but week succeeded week, and sunshine followed rain, calm succeeded windy days, without bringing any material change in conditions, so that the regular season ended with a great deficiency in the scrap production, and even the operations outside the bay late in the fall, though attended with rather more satisfactory results, could not make up for the previous losses sustained. Naturally the price of scrap went up to almost unprecedented figures. The quotations rose by leaps and bounds, going from $2.65 and 10 in July, basis Baltimore, to $3.60 and 10 f. o. b. factory. At those prices, of course, no manufacturer bought scrap unless he was compelled to get it in order to keep up his brands of fish mixtures. The poor catch forced some of the fishing companies into insolvency, while others sold parts of their fleets, practically no additions being made to the number of steamers at work, as had been the case the year before. Many of the steamers cut out long before the expiration of the regular season, the fishing companies finding it less costly to lay up their vessels than to keep them on the fishing grounds, manned and provisioned. The advance in the price of scrap did not begin to compensate the factories for the smallness of the catch of fish, and the season went down in the annals of the industry as one of the poorest ever experienced. Its exhausting effects were felt all the more because it followed a year that had not been especially prosperous.

All of the Baltimore firms or corporations engaged in the fertilizer trade weathered the year in good shape, which, as stated, was due more to excellent management and large resources than to the nature of the returns, the business conditions throughout most of the year having been such as to make talk about a fertilizer trust, such as prompted the Federal government to undertake an investigation sound like a joke. As a matter of fact, it is to be doubted if any of the Baltimore concerns made money during the year, the competition having been intensified by the slump in the demand for mixtures at a time when an expansion was confidently looked for. The manufacturers faced not only an increase in the cost of manufacturing by reason of an advance in wages and expenses of handling materials, but they were compelled to pay more for their crude stocks, all of the animal ammoniates going up to well nigh record figures, along with nitrate of soda. A study of the fertilizer import figures suggests that in point of volume the business made gains, but the manufacturers did not add to their wealth by reason of this gain. It is to be doubted even if the normal twelve per cent. annual increase was realized in consequence of the unfavorable weather and other conditions. At any rate, none of the manufacturers found it necessary or desirable to augment their facilities and to provide larger productive capacity. The great activity in the erection of new factories and the enlargement of old ones, which was so conspicuous a feature of 1911, seems emphatically to have discouraged building since then, the members of the trade waiting now for the business to grow up to the facilities. There was no rise in the price of the manufactured stocks to correspond with that in crude materials, the intense rivalry in this field preventing any taking advantage of the increased cost of production to mark up the figures for the various brands of fertilizers on the market. Competition also served as an effectual check upon any lowering of grades.

As stated, the import figures suggest a gain in point of volume. Some items on the list of imports declined quantitatively, but the deficiency was more than made up by an excess in others, the general result being an increase from 748,990,191 pounds, worth $5,552,929, in 1912, to 971,191,868 pounds, worth $6,844,879, in 1913. Notwithstanding the advance in the price of potash there were large gains in the imports of kainit, muriate and manure salt. Of sulphate of potash considerably less arrived here, while bone dust and ash show a heavy increase and nitrate of soda an even greater one. The receipts of sulphate of ammonia were less by more than a million pounds in 1913 than the year before, and pyrites made an advance of over 30,000,000 pounds. The figures for the various materials are as follows:—

	1913		
Material.	Pounds.	Value.	
Kainit	128,340,800	$230,327	
Muriate of potash	139,590,440	1,841,534	
Manure salt	109,979,520	421,228	
Sulphate of potash	8,607,910	143,914	
Bone dust and ash	11,085,760	117,375	
Nitrate of soda	200,887,680	2,326,208	
Sulphate of ammonia	17,785,142	526,741	
Pyrites	361,965,600	985,381	
All other fertilizers	.....	252,571	
Totals	971,191,868	$6,844,879	
	1912		
Material.	Pounds.	Value.	
Kainit	107,333,640	$222,950	
Muriate of potash	105,264,190	1,544,259	
Manure salt	70,103,040	262,696	
Sulphate of potash	9,758,484	166,334	
Bone dust and ash	6,793,920	70,211	
Nitrate of soda	106,787,520	1,360,047	
Sulphate of ammonia	18,827,477	743,564	
Pyrites	328,121,920	915,212	
All other fertilizers	.....	277,656	
Totals	748,990,191	$5,552,929	

KAINIT.

	1913		1912	
	Tons.	Value.	Tons.	Value.
Jan.	3,899	$15,934	1,149	$8,284
Feb.	5,552	20,670	968	4,798
Mar.	3,061	13,037	2,022	7,940
April.	4,931	21,777	4,552	24,919
May.	4,760	21,086	5,611	22,871
June.	8,927	35,488	5,100	28,490
July.	6,128	24,898	8,938	42,176
Aug.	2,797	14,431	5,454	25,680
Sept.	3,085	11,997	2,383	10,141
Oct.	3,579	12,838	2,864	15,808
Nov.	5,446	20,845	4,325	18,372
Dec.	5,522	18,350	2,705	13,461
Ttls	57,295	$230,327	46,131	$222,950

MURIATE OF POTASH.

	1913		1912	
	Pounds.	Value.	Pounds.	Value.
Jan.	9,970,193	$135,940	8,533,831	$128,946
Feb.	12,989,386	178,083	12,156,976	180,998
Mar.	15,311,467	209,192	9,089,056	140,552
April.	5,914,000	85,520	11,780,604	165,599
May.	11,273,534	159,343	10,631,038	149,457
June.	11,833,508	165,293	12,203,950	174,067
July.	14,205,156	196,631	15,522,552	205,249
Aug.	4,514,703	62,354	5,016,157	74,932
Sept.	9,621,770	134,856	6,266,979	89,275
Oct.	5,027,684	71,017	5,375,058	76,133
Nov.	13,125,311	181,217	8,409,989	119,057
Dec.	18,814,889	264,098	11,914,807	169,937
Ttls.	132,599,456	$1,841,534	105,624,190	$1,544,259

MANURE SALT.

	1913		1912	
	Tons.	Value.	Tons.	Value.
Jan.	3,055	$26,124	1,800	$14,071
Feb.	3,092	24,157	1,420	11,091
Mar.	1,039	9,825	1,100	8,346
April.	2,907	25,347	1,785	12,875
May.	7,011	56,851	1,849	14,475
June.	6,063	50,122	4,152	31,021
July.	4,484	38,746	5,696	40,240
Aug.	881	8,121	1,390	13,759
Sept.	5,427	43,711	1,924	14,588
Oct.	1,411	13,369	600	4,694
Nov.	5,347	47,891	5,220	47,008
Dec.	8,540	73,984	4,360	40,328
Ttls.	49,098	$421,228	31,296	$262,636

SULPHATE OF POTASH.

	1913		1912	
	Pounds.	Value.	Pounds.	Value.
Jan.	1,413,023	$23,418	1,038,248	$33,555
Feb.	1,198,555	19,819	696,759	11,954
Mar.	1,124,171	18,598	871,683	15,127
April.	897,163	15,587	693,913	10,759
May.	459,173	7,448	562,957	9,434
June.	.....	.....	803,957	13,296
July.	521,044	8,532	682,189	11,842
Aug.	56,365	1,176	168,714	2,630
Sept.	798,265	13,155	1,178,948	20,389
Oct.	91,187	1,492	225,988	3,645
Nov.	909,029	14,856	1,465,159	24,511
Dec.	1,139,975	19,446	553,979	9,192
Ttls.	8,607,910	$143,914	9,758,484	$166,334

BONE DUST AND BONE ASH.

	1913		1912	
	Tons.	Value.	Tons.	Value.
Jan.	90	$2,117	393	$8,856
Feb.	343	7,776	195	5,073
Mar.	141	3,569	50	1,129
April.	401	10,942	50	1,454
May.	338	8,327	50	1,126
June.	450	12,172	.....	.....
July.	1,772	48,777	476	10,761
Aug.	751	17,193	862	21,129
Sept.	189	5,294	935	21,874
Oct.	100	2,820	.....	.....
Nov.	100	2,301	.....	.....
Dec.	274	6,088	52	1,411
Ttls.	4,949	$117,375	3,033	$70,211

NITRATE OF SODA.

	1913		1912	
	Tons.	Value.	Tons.	Value.
Jan.	8,039	$227,728	5,269	$128,158
Feb.	.....	.....	.....	.....
Mar.	7,236	197,481	.....	.....
April.	15,125	392,691	4,746	98,728
May.	8,541	224,971	.....	.....
June.	4,915	128,820	4,736	112,193
July.	6,473	162,792	12,006	330,341
Aug.	10,981	224,730	.....	.....
Sept.	7,989	199,718	6,182	242,833
Oct.	5,892	139,689	9,453	278,811
Nov.	9,737	273,140	5,281	162,883
Dec.	4,754	153,548	.....	.....
Ttls.	89,682	$2,326,208	47,673	$1,363,047

SULPHATE OF AMMONIA.

	1913		1912	
	Pounds.	Value.	Pounds.	Value.
Jan.	2,579,733	$80,643	3,418,985	$98,187
Feb.	1,547,023	46,500	641,881	18,509
Mar.	1,987,420	59,491	1,911,468	54,706
April.	112,000	3,358	112,613	3,045
May.	.....	.....	.....	.....
June.	396,402	11,382	173,204	5,035
July.	1,013,524	28,797	225,867	6,855
Aug.	226,892	6,420	627,272	17,613
Sept.	1,588,595	45,639	3,496,909	107,138
Oct.	1,709,709	52,030	1,316,267	40,283
Nov.	3,857,910	112,202	2,653,382	81,755
Dec.	2,765,334	79,788	4,249,709	130,458
Ttls.	17,785,142	$526,341	18,827,477	$743,564

PYRITES.

	1913		1912	
	Tons.	Value.	Tons.	Value.
Jan.	16,397	$169,118	4,524	$31,927
Feb.	21,700	147,842	4,144	13,445
Mar.	17,468	118,129	15,176	76,074
April.	53,567	159,520	19,131	132,944
May.	11,100	68,374	16,553	116,784
June.	6,523	51,545	8,164	27,847
July.	5,570	41,780	21,404	142,235
Aug.	5,009	24,335	4,694	38,176
Sept.	18,415	107,664	9,568	62,097
Oct.	14,525	101,471	10,531	64,648
Nov.	6,880	23,543	21,202	114,544
Dec.	4,341	32,050	11,392	92,550
Ttls.	161,565	$985,381	146,483	$915,212

ALL OTHER FERTILIZERS.

	1913. Value.	1912. Value.
January	$15,554	$18,978
February	15,204	47,473
March	22,250	42,068
April	12,050	30,689
May	13,490	10,168
June	41,043	29,218
July	18,779	12,013
August	27,624	13,453
September	15,513	20,009
October	10,315	21,622
November	37,037	12,487
December	169,268	12,888
Totals	252,571	$277,656

The range of the quotations during the year is shown in the following tables, which give approximately the figures at the beginning of each month. These tables indicate that the syndicate prices for potash were unchanged throughout the year, notice of an advance of 1914 having been given about the first of December. The figures further disclose the fact that bone varied from $29.50 for 4½ and 50 ground raw to $28.95, with 3 and 50 ground steamed ranging from $23 to $20.75 and 1 and 60 bone flour from $20 to $20.25.

Fish scrap developed a wide range, the market opening about the beginning of the season, or after the factories had gotten under way, at $2.75 and 10 f. o. b. Baltimore, to $3.60 and 10 f. o. b. factory, which was the price when the year closed. At that time, however, the quantities of scrap in the hands of the producers were negligible. The low price for tankage was in July, when the quotations sagged to $2.72½ for 11 and 15 high grade ground tankage, the quotations having gradually eased off after a rise to $3 in April from $2.85 and 10 in January. After July, when the failure of the fishing season became conclusively apparent,

the price rose until it touched $3.47½ in December. It is to be said also that in addition to the spot prices during the period when tankage advanced rapidly the sellers were asking an addition of 5c. per unit of ammonia for each deferred month. The fluctuations in blood were somewhat smaller, though in the main this material kept pace with tankage. Ground concentrated tankage went as low as $2 in June and July, and was not in especially active request all the year, no quotations being received for long intervals.

Acid phosphate proved in a way a disappointment. Last winter brought a considerable cleaning up of the stocks held here, which were quite large for a time, and it was confidently expected that the prices would advance, especially in view of the strength shown by other materials. But the quotations at no time advanced beyond $7 for 14 per cent. and $7.50 for 16 per cent. and most of the year the demand was by no means as active as the previous heavy withdrawals had led the holders to expect. For several months, in fact, the figures given were merely nominal, actual sales being made under the list.

With respect to nitrate of soda there has been a steady decline from $2.62½ in February to $2.15 in December. Whether this was due to the augmented offerings or the sagging in the demand or some other cause is not certain, but in well-informed trade circles the belief prevails that competition between the old nitrate interests and a newcomer in this field must be held responsible, a theory strengthened by the fact that since the end of the year there has been an advance despite the circumstance that the receipts here have been quite large. It is thought that the rival importing interests have decided to stop fighting each other and have reached an understanding whereby each is allowed a fair proportion of the business.

The price of sulphate of ammonia had fallen from $3.40 in May to below $3 at the present time. Evidently the strong support which this material encountered during part of the year has been withdrawn and the quotations now are based more nearly on normal conditions of supply and demand. It was suggested that the Japanese Government was making large purchases of sulphate of ammonia for certain purposes, and that the needs of this government being satisfied, the producers have been made more dependent upon the American trade than before. But whatever the cause, there can be no doubt that at the present time the material is weaker than for many months, and the tendency still seems to be downward. The following tables show the range of the quotations:—

	Baltimore and all ports north						
	Muriate. 50%	Sulphate. 48%	Kainit—In bulk. 12%	Kainit—In bags. 12%	Manure salt in bags. 20%	20%	Double manure salt. 25%
Jan..	$38.80	$47.05	$8.50	$9.50	$13.55	$14.55	$25.20
Feb..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Mar..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
April.	38.80	47.05	8.50	9.50	13.55	14.55	25.20
May..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
June.	38.80	47.05	8.50	9.50	13.55	14.55	25.20
July..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Aug..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Sept..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Oct..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Nov..	38.80	47.05	8.50	9.50	13.55	14.55	25.20
Dec..	38.80	47.05	8.50	9.50	13.55	14.55	25.20

	Bone			
	4½ and 50 ground raw.	3 and 50 ground steamed.	1 and 60 bone flour.	Fish scrap.
January	$29.50	$23.00	$20.00	..
February	29.00	23.00	20.00	..
March	29.00	23.00	20.00	..
April	29.00	23.00	20.00	..
May	29.00	23.00	20.00	$2.75
June	28.00	22.00	20.00	2.65
July	28.00	22.00	20.00	2.65
August	28.00	22.00	20.00	2.75
September	28.00	22.00	20.00	2.90
October	28.00	22.00	20.00	3.25
November	29.00	21.50	20.00	3.60
December	28.75	20.75	20.25	3.60

	Tankage, 11 and 15.	Ground blood.	Ground concentrated tankage.
January	$2.85	$2.81½	$2.62½
February	2.82½	2.90	2.60
March	2.95	3.00	2.60
April	3.00	3.12½	2.55
May	2.93	3.10	2.35
June	2.90	2.90	2.00
July	2.72½	2.90	..
August	2.75	2.95	..
September	2.87½	2.95	..
October	3.15	3.25	3.00
November	3.40	3.40	3.05
December	3.47½	3.45	3.07½

	Acid phosphate. 14%	16%	Nitrate of soda.	Sulphate of ammonia.
January	$6.50	$7.00	$2.60	$3.22½
February	6.50	7.00	2.62½	3.30
March	6.50	7.00	2.62½	3.32½
April	7.00	7.50	2.62½	3.35
May	7.00	7.50	2.57½	3.40
June	7.00	7.50	2.47½	3.00
July	7.00	7.50	2.35	3.00
August	7.00	7.50	2.35	3.00
September	7.00	7.50	2.40	3.15
October	7.00	7.50	2.30	3.09
November	7.00	7.50	2.25	3.03
December	7.00	7.50	2.15	3.00

Locally the fertilizer trade has been singularly uneventful. As stated, none of the activity in the way of extending facilities characterized the business during 1913. Several establishments were visited by fires, among them those of the D. B. Martin Company, the Union Abattoir and the F. S. Royster Guano Company, the latter factory having been heavily damaged on January 16. The trade escaped visitations by death, and there were no important changes in personnel of corporations.

ATLANTA FERTILIZER MARKET.

Good feeling permeated the fertilizer material market here at the close of the business year. The fall and winter demand was fairly good and all conditions indicate an active season, with good trading and fair prices.

Quite in contrast with the close of the 1912 season, collections in the fall of 1913 were good. Georgia had made a comparatively large cotton crop which sold at good prices, due to crop failures in the western section of the cotton belt and the farmers generally not only met their obligations for 1913, but paid off the debts carried over from 1912. Besides this, as a rule, they had money left in the bank, and are well prepared in that respect for the new planting season.

The year has opened up with fine weather conditions and preparation of the ground for new crops is further advanced at this time than has been known in many years. An absence of the rains of last year is helping along the good work in this respect and there is now every indication that consumption, if not in excess of it, will be about equal to the record season of 1910-11, when Georgia used more commercial fertilizers and cottonseed meal than in any other year of the State's history.

There was a gradual and general increase in the consumption of bag goods in Georgia year after year right up to 1911-12, when there came a decrease of approximately 100,000 tons of commercial fertilizers and about 8,000 tons of cottonseed meal. The season of 1912-13 brought a slight increase in consumption, and a much larger increase is anticipated for the current year. The consumption of commercial fertilizers and cottonseed meal in Georgia for the past five seasons, as indicated by the tag sales reported by the State Department of Agriculture, has been as follows:—

Season.	Fertilizers, tons.	Cottonseed meal, tons.
1908-9	897,832	103,532
1909-10	1,030,039	106,302
1910-11	1,202,722	129,748
1911-12	1,103,864	121,236
1912-13	1,120,635	122,975

The 1912-13 consumption is what may be considered normal. In 1910-11 the consumption was really abnormal, as that was the year in which almost every foot of available ground was planted in cotton. So it may be considered that while the consumption is now growing larger from year to year, it is in reality a normal consumption. In this connection, it may be pointed out, that Georgia is now using more commercial fertilizers under corn than ever before in the history of the State. One cause of this is the splendid work of the Boys' Corn Club in Georgia, the effect of which has been largely to increase the corn yield per acre through methods which include heavy fertilization; for the farmers generally, seeing what the boys were able to accomplish through the application of modern methods, are using these methods themselves. Thus Georgia in 1913 made her record corn crop.

The year 1913 opened up with a considerable strengthening in the market and some comparatively good sales of materials. The usual period of inactivity came during the holiday season and just following it, but by February the market showed a considerably stronger tone and activity began to appear. Prices began to advance even before there was any special activity in trading. February showed good sales in South Georgia, although the market was comparatively slow in the northern section of the State. The outlook at that time was good and brokers and dealers generally were figuring on a fair average season's business.

March brought a decided improvement in the material market and numerous orders began to be placed. The orders at this time were small as a rule, but the great number of them brought the sales up to a good average and there began to be a better feeling in the trade than at any time since the dullness of the preceding year. The improvement, however, came so late that it had comparatively little effect on prices, although there were continued small advances in blood, tankage, sulphate of ammonia, fish scrap and cottonseed meal.

The latter part of March and beginning of April saw material trading at its height. The market was unusually brisk and nearly all materials, particularly the ammoniates, kept jumping up right along. Acid phosphate, however, and the potash salts remained comparatively stationary. While there were no remarkably big deals reported, the general trading was so active that it was considered much ahead of that of the preceding year. The market continued to hold up well during April and there was no cut of prices. Conditions were looked upon as substantial and indicative of a good material business in the late summer and fall. The weather at this time was exceptionally fine.

The close of April and first of May brought practically an end to the material season, with every prediction regarding it fully verified by results. The season's business was regarded as an exceptionally good one. The closing weeks saw many heavy sales, far exceeding those of the preceding season, and while prices as a rule did not run as high as some of the dealers anticipated, the demand was heavy enough to prevent any disastrous competition for business which might have resulted in a serious loss to the trade. General satisfaction was expressed with the season's trading and there was every indication of good business in the late summer and fall.

During May and June the market experienced its usual season of inactivity. Some materials were offered at extremely low prices, but there were no takers and practically all the buyers occupied places on the waiting list. Stocks were depleted and sales which were small were few and far between. Prices remained comparatively low and quotations were practically all nominal. In June there was a little trading in sulphate of ammonia and nitrate, but outside of that the market retained its usual dullness and the only changes in quotations were in the direction of weakness.

The latter part of June and July the market began to look up and although trading remained exceedingly quiet, there were many inquiries and indications of a good fall business began to appear. The general trading at this time was in nitrate and bulk acid, the new price of which remained the same as the old. The new prices announced in most instances were lower than the figures quoted at the close of last season, except in the case of cottonseed meal, which had advanced considerably, although there was practically no trading in it because there was none in the market.

Late July, August and early September saw the market somewhat halted, largely on account of an anticipated heavy cotton crop with the prospect of a large supply of cottonseed meal. Business was slow and everybody seemed to be waiting to see what cottonseed meal was going to do. The price of meal for future delivery was anywhere from $1 to $3 a ton below quotations for spots, and the producers wanted to see how it was going to compare with the other ammoniates before making their contracts. The latter part of September the market took on a stronger tone. There began to be numerous small sales of many of the products, while the meal market became unusually active. This activity, however, in meal was for a time somewhat of a puzzle to the dealers, as it developed that it was due as much to the stock feed trade as to its use for a fertilizer. These conditions continued through October, and during this month large quantities of meal were bought in this market for speculation. At this time farmers began to pay their notes rapidly, taking up not only those for the current year but those which had been carried over from the preceding year, and there could have been no better indication for the fertilizer trade.

Somewhat suddenly the latter part of October and early in November the material market developed a remarkable activity and one in which for a time there was considerable mystery. Meal, blood and tankage went up, while nitrate went off. The price changes came about even before some of the brokers were aware of it, and orders taken by brokers had to be cancelled because the products could not be secured at the prices named by the purchaser. This unusual activity continued almost during the entire month of November. The market was strong and there was good demand in practically every line. One reason assigned for this was the fact that Georgia farmers generally found themselves with plenty of money to meet their obligations and to take on their supplies, and almost everywhere in the State they began hauling their hulls and meal out over good roads instead of waiting until winter and spring when they would have had to pull them through the mud.

With the beginning of December this unusual spurt in the market dropped off almost as suddenly as it began, and while prices held up fairly well, weakness was shown in a number of lines, particularly in nitrate, the price of which brought about considerable trading. The year closed with some heavy trading in nitrate of soda and cottonseed meal, although along other lines the situation was quiet. Dealers continued, however, to feel good over the situation and the belief was generally expressed that at the close of the season about May 1, aggregate sales will have been as large, if not larger, than those of the record season of 1910-11.

Cottonseed meal sold during 1913 all the way from $24 up to $29.50. The lower price was due largely to the anticipation of a large cotton crop in the early fall and was quoted for futures. This product probably had more effect on the market during the year than others. Its use as a stock feed tended to hold its price up, while at the same time manufacturers looked to it as a possible cheaper source of ammonia, as the result of which it naturally affected the market in other products. Selling at $26 and then at $25 in the early spring, it advanced to $27 and $28 in the summer, when the supply was practically exhausted; then went up to $29, while in July spots were quoted at $29.50 and figures at $24 to $24.50. The supply, however, did not pan out so well in the fall as had been anticipated and the price again advanced to $27 and $28.

Blood opened at $2.87½ and gradually advanced until at the close of the 1913 season it was selling at $3.12. It then dropped off slightly during the summer months and up to September sold at around $3. In the latter part of September it went to $3.28, jumping in October to $3.50 and selling at around this price at the close of the year.

Tankage began the year at $2.85 and 10 and jumped shortly to $2.90 and 10, Atlanta. In the height of the spring season it sold at $3.12 and 10, dropping to around $3 during the summer months. In the late summer it went to $2.85 and 10, and suddenly jumped in the latter part of September to $3.21 and 10, with a record price of $3.55 and 10 in November. Sales of blood and tankage were specially good in the late fall.

The following table shows the prevailing prices in Atlanta for cottonseed meal, blood and tankage for each month of 1913:

	Cottonseed meal.	Blood.	Tankage.
January	$26.00	$2.87½	$2.85 and 10
February	25.00	2.95	2.90 and 10
March	27.00	3.12	3.12 and 10
April	28.00	3.12	3.12 and 10
May	28.00	3.05	3.00 and 10
June	28.00	3.05	3.00 and 10
July	29.00	3.00	2.85 and 10
August	29.50	3.00	2.85 and 10
September	26.00	3.28	3.31 and 10
October	26.50	3.50	3.45 and 10
November	28.00	3.52½	3.55 and 10
December	27.00	3.50	3.50 and 10

[Note.—The foregoing prices are for spots and are the highest that were quoted during the months in question. Meal futures in July and August sold as low as $24.]

Nitrate of soda was another product that had a rather spectacular career during 1913. It was in heavy demand as a top dressing on account of a rather scant use of commercial fertilizers at planting time. Early in the year it sold as high as $2.63½ at the ports and only began to weaken in May when the demand fell off. It sold during the summer and fall months around $2.37½ and then went down to $2.17½ in November. In December it took a sudden drop to $2.14, but remained at that figure only a few days, during which time considerable quantities of it were sold. It then moved back to $2.17½.

Fish scrap opened the year at $3.20 and 10, Charleston. There was very little of it to be had. In May the new crop for fall delivery was quoted at $2.90 and 10 at the ports and the next month the old crop dropped to $2.85 and 10, with very little to be had. These prices were maintained until September when the new quotation was $3.10 and 10 South Atlantic ports. The catch was reported very poor and the price went up accordingly. In October it was quoted at $3.20 and 10; in November $3.60 and 10, after which it fell off slightly.

Sulphate of ammonia started the year at $3.25, Savannah. There was a slight decline in May to $3.20, and again in June to $3.02½. In August only domestic was to be had and that was quoted at $3.20, Atlanta, at which price it remained to the close of the year.

The following are the prevailing highest prices for each month of 1913, for nitrate of soda, fish guano and sulphate of ammonia, quotations being all ex-vessel, South Atlantic ports, with the exception of sulphate of ammonia from August through the remainder of the year, which is domestic and is quoted on the basis of Atlanta:—

	Nitrate of soda.	Fish guano.	Sulphate of ammonia.
January	$2.60	$3.20 and 10	$3.25
February	2.62½	3.20 and 10	3.25
March	2.63½	3.25 and 10	3.25
April	2.62½	3.25 and 10	3.25
May	2.55	3.25 and 10	3.20
June	2.37½	2.85 and 10	3.20
July	2.35	2.85 and 10	3.02½
August	2.40	2.85 and 10	3.20
September	2.37½	3.10 and 10	3.20
October	2.37½	3.20 and 10	3.20
November	2.30	3.60 and 10	3.20
December	2.17½	3.45 and 10	3.20

[Note.—The foregoing quotations are the highest market prices for the months named.]

Potash salts exhibited no remarkable fluctuations during the year. There was a gradual rise in the early part of 1913 as the season approached its climax and the prices then attained held up well until July, when there was a decline. There was a rise again in September, but only of a small amount, according to Atlanta quotations. At the same time it was stated that actual contracts would have to be made on a higher basis. While kainit was quoted here in September at $7.50, it was stated actually to be selling at $8.25. There never was any material change, however, in the Atlanta quotations, all of which are based on delivery f. o. b. cars at the South Atlantic ports.

The following are the Atlanta quotations for potash salts delivered f. o. b. cars, Savannah, Charleston or other ports:

	Kainit.	Muriate.	Manure salt.
January	$7.90	$34.75	$11.90
February	7.90	34.75	12.40
March	7.92	34.75	12.40
April	7.92	34.75	12.40
May	7.92	34.75	12.40
June	7.92	34.75	12.40
July	7.42½	34.25	12.40
August	7.42½	34.25	12.40
September	7.50	34.75	12.40
October	7.50	34.75	12.40
November	7.50	34.75	12.40
December	7.62	34.75	12.40

The year opened with heavy stocks of acid phosphate on hand and the quotation $8, Atlanta. This figure held through the spring and summer until September, when it was quoted at $7.50, and that price held until November, when it went back to $8, remaining at

that price until the close of the year. There were desultory heavy sales of bulk acid at times during the year, but no remarkable trading.

Phosphate rock opened the year with a decline, being quoted at $2.50 to $2.75 at the Florida mines. There were large accumulated stocks with small demands. This was the first break in the price of rock in a year, as it had been quoted throughout 1912 at $2.75 to $3. The new price held until September, when there was another break and rock was quoted at $2.25, Florida mines, a price which it held until the close of the year.

The price of pyrites remained steady practically throughout the entire year at 13½ cents per unit of sulphur at the ports.

There were no developments of special interest to the fertilizer trade in Georgia during 1913. Some rather radical legislation was proposed at the meeting of the general assembly in the summer, but none of it was enacted and the present legislature bids fair to close its final session the coming summer without taking any radical action affecting this business.

Toward the close of 1913 a large number of individual mixers who have small plants in various points in the State, petitioned the State Railroad Commission to reduce the rates on fertilizer materials in Georgia, which were fixed several years ago. These rates are now the same as those on commercial fertilizers and were made in order that the manufacturer might ship mixed cars, that is part materials and part bag goods. It is one of the railroad commission's rules that rates on fertilizer materials shall not exceed the rates on fertilizers. The Georgia mixers asked permission to take acid phosphate and kainit out of the fertilizer material list and give these two articles a rate 25 per cent. lower than that on fertilizers. The reason for this request was that these articles which are the basis of fertilizers, entering largely into their manufacture, are considerably cheaper than the finished goods and the mixers claim that lower priced goods should bear a correspondingly lower freight rate.

The railroad commission took the matter under advisement after hearing from both sides, and has just announced that it will render no decision in the case until June, the reason being that a large number of contracts have been made on the basis of the present rates and the commission does not desire to complicate the business situation in the middle of the season by a decision of this kind. There is no indication as to what the commission will do, but in any event it considered that it was advisable to hold the matter up until the close of the active trading season.

PHILADELPHIA FERTILIZER MARKET.

The fertilizer trade in 1913 was better than in 1912. The mild winter months in the opening of the year enabled early shipments to move with promptness. There were late frosts in the spring, which were very damaging to vegetation in certain sections, and considerable replanting of crops was the result, though this did not increase the amount of fertilizer sold, as the second crop was put in to use the fertilizer originally intended for the crop which was killed by the late frosts. On the whole, the spring trade in 1913 was practically as good as in 1911, but the fall trade was short, owing to the poor crops in many sections. In addition to the late spring frosts which killed a great deal of early truck, the months of May, June and July were exceedingly dry, resulting in a rather small crop of potatoes in this vicinity. In some sections the lack of rain caused a complete failure of the crop, and the actual returns, in some cases, were less than the original cost of the seed and the fertilizer for planting the crop. Acid Phosphate has recovered somewhat from its low price of 1912. There has been a curtailment in the manufacture of it, and the almost normal business in mixed fertilizers took considerably more than it did in 1911. This combination of circumstances led to a much stronger market during 1913 than for the two previous years. The fishing season of 1913 was a great disappointment. The catch was exceedingly poor, so poor, in fact, that some of the companies became bankrupt, and others laid up their boats early in the season and refused to continue fishing at a loss. The catch was probably from forty to fifty per cent. of the normal fish catch, and the prices touched the highest point known for this commodity. This shortage in the fish catch resulted in an exceedingly strong demand for animal ammoniates, which under this influence, advanced to very high prices in the fall of 1913, which resulted in their touching top limits by the end of the year.

Potash salts were sold on the same basis as before, and the consumption was about in normal proportion. In the last months of the year, however, the advance of a dollar per ton in potash salts was announced for 1914, which stimulated late buying for 1913 delivery.

Where farmers have had a normal year collections have been good, but in many sections, owing to the late frosts and drought referred to above, the collections have been the poorest known in generations. It is estimated that more good farmers have notes outstanding at this time than ever before, and in some cases, their bills being heavy, temporary mortgages have been placed on their property to take care of their 1913 bills.

No new legislation of any amount has taken place during the past year. There is still talk of a national fertilizer law, applicable to selling goods in all states, but so far not much progress has been made. Labor was exceedingly scarce and very highly paid during the spring shipping season of 1913. There were labor troubles in the vicinity of Baltimore and few factories obtained all the men they could have used in the busy season.

We find it is a very difficult matter to obtain statistics of the total amount of production in this district, or of the sales that were made, but we are inclined to believe that there is a greater progress year by year in increase.

Ammoniacal materials, Nitrate of Soda and Sulphate of Ammonia, are both considerably lower and this will be a help to the manufacturers in getting out the product for 1914, unless they have previously contracted for the supplies before the decline.

The Government interest as well as the public interest in scientific farming and the appropriations made by Congress for the purpose of distributing this information throughout the United States to the farming interests, in order to produce greater crops, or crops more in conformity with the product of European countries, would lead us to anticipate that there will be a much larger demand for fertilizers than heretofore, and this will contribute greatly to the optimistic feeling amongst the trade for the year 1914.

The estimates of the production of Fertilizers in this district average from 225,000 tons to 250,000 tons. Few or no stocks were carried over into this year. Propositions have been made by some of the manufacturers for an increased production during this year.

New York Dye Market

Considering the year as a whole, demand for dye materials was fairly good. Steady deliveries to consumers were reported for the greater part of the year in the case of many articles of this market. The natural dyes did not gain in form and they seem to be slowly losing ground in favor of manufactured dye-stuffs. Gambier was in fair demand, but its use in the dye trade is principally as a mordant. Natural indigo is insignificant in use compared with the synthetic product.

The revision of the tariff schedule had some effect upon the market for dye materials. In the case of zinc dust prices were lowered as a result of the reduced duty and concessions subject to ratification of the new duty were made by sellers as early as the summer months. The general slowness observed in all lines of trade was extinued to dye materials in the last quarter of the year. Labor troubles also were disturbing factors at different times during the course of the year.

In March an order was handed down by the courts, dissolving an alleged combination, commonly referred to as the "Coal-Tar Trust," operating in coal-tar and its products. There companies had been constituting a violation of the Sherman anti-trust law. The complaint charged that of the output of 2,774,934 barrels of coal-tar per year, that 80.6 per cent. were produced or purchased by one company and its subsidiaries. The defendants offered no opposition to the Government's action, but derided the allegations that they were operating in restraint of trade. They submitted to the decree and complied with the demands for dissolution.

Following are figures showing imports of alizarin and alizarin dyes and colors, for the calendar year, with comparisons:—

	Pounds.	Value.
1913	5,918,317	$1,493,440
1912	6,116,048	1,504,239
1911	4,342,351	995,634
1910	2,695,063	535,911

Imports of coal-tar colors and dyes were valued as follows, for the calendar years enumerated:—

	Value.
1913	$7,111,483
1912	7,316,697
1911	6,448,502
1910	5,840,774

Albumen.

A fairly steady call for both dried egg albumen and blood albumen was reported throughout the year. While the tariff schedule was under discussion trading was interfered with to some extent by proposed changes in the duties on albumen, but the final adjustment brought no change in the import duty on egg albumen, though blood albumen was lowered. A brief submitted at Washington stated that egg albumen was imported in the two conditions. In a dried condition, that is in a flaky or powdered form, which is the egg white separated from the yolk with the water extracted. The water extracted represents 75 per cent. of egg white in its natural condition. About 95 per cent. of the dried egg albumen sold is for chemical and manufacturing purposes, such as dyeing, tanning, photography, etc. (1) Egg white or albumen is also imported in a frozen condition. It is a food product and the contention is made that dried egg albumen is four times as valuable as frozen egg albumen. While large amounts of egg albumen imported into this country come from China there are also large amounts shipped to Europe from Asiatic Turkey. There are three egg albumen establishments in Aleppo, and one each in Ourfa, Killis, Antioch, Beredjik and Mardin. The process consists of breaking the eggs and separating the albumen from the yolk by hand and drying the albumen in large tins in the sun, after which it is packed in cases; the yolk is salted and mixed in the liquid state, and packed in barrels. It is all shipped to France, Belgium and Austria, France taking about four-fifths of the total output. The average price of dried albumen f. o. b. the ports at Alexandria and Tripoli, packed in cases, is 44@52½c. per pound; the liquid egg yolk, in barrels, brings 9½@11½c. a pound. These prices include packing, transportation to ports of shipment, embarkation, transit agent's commission, and export duties of 1 per cent. The total value of dried albumen and liquid egg yolk exported from the Aleppo consular district annually is placed at about $75,000.

Prices for egg albumen in the local market has varied according to quality. At the beginning of the year 42@65c. per pound was quoted, and at the close the quotation was 40@68c. While the range varied but little, intermediate prices were governed somewhat by the stocks on hand. As sellers were carrying heavy stocks and granted concessions in order to stimulate demand of buyers. Domestic producers are said to be giving more attention to the production of blood albumen and the home output is reported to be increasing. Packers have stated that a bullock ordinarily will produce from one to one and a half pound of blood albumen, not all of No. 1 grade, however. Imports of blood albumen have increased since the change in the tariff schedule. Prices were quoted at 22@32c. per pound. A comparison of imports of albumen is afforded by the following table, which gives the amounts imported during the fiscal year ending June, 30, 1913, together with comparisons for the past five years:—

IMPORTS OF BLOOD ALBUMEN.

	Pounds.	Value.
1913	177,795	$27,847
1912	116,482	25,200
1911	116,439	19,973
1910	196,472	29,605
1909	265,595	45,357

IMPORTS OF EGG ALBUMEN.

	Pounds.	Value.
1913	1,246,744	$406,594
1912	1,040,759	329,732
1911	903,504	349,999
1910	699,612	268,732
1909	408,492	196,058

Aniline Oil and Salts.

Routine conditions prevailed in this market for the greater part of the year. The change in tariff had some effect upon the market, but large consumers were able to secure supplies at former figures. Some progress is reported in the attempt to build up home production and the offerings of domestic material caused considerable competition among sellers. A report from Russia in discussing the market for aniline salt there during 1912 says that a decrease in price from 13 roubles 35 copecks per pood to 11 roubles 65 copecks per pood was noted. This is ascribed to the reduction in price by the German syndicate for aniline combinations. The reduction in price of aniline oil and salt in Germany last year is looked upon as a move on the part of the syndicate to bring pressure to bear on outsiders. It is pointed out that this is more obvious as the raw material, benzol, has risen in price because of decreased production.

Information regarding the various costs incurred in handling foreign grades of aniline oil and salts, together with their fields of consumption, is given as follows:— These articles are used principally on cotton yarn, cotton cloth, common cotton lining and cotton hosiery and umbrella cloth, cheap goods bought by the poorer classes. Silk, wool, union goods and such grades are dyed with more expensive material. Carrying expenses of aniline salts are thus referred to:— Freight is 35s. per gross, 11 per cent. off for tare, making a gross ton equal of 1994 pounds carried for 35c., which at exchange 4.87, $8.52; insurance, custom entry and brokers' fees, say $0.48; total expense, $9, which on 2,000 pounds, forty-five one-hundredths cent per pound. Cost of aniline salts, year 1913; is 7.61c., therefore, forty-five one-hundredths cent equals, say, 6 per cent. Carrying charges on aniline oil are 40s. per ton gross freight, 20 per cent. off for tare (goods packed in iron drums), making a gross ton carried equal to 16 hundredweight aniline oil, or carried for 40s., which at exchange 4.87 ,is $9.74; therefore, freight, $9.74; two drums to a ton, to be returned empty, cost $1.50 per drum, equals $3, less 20 per cent., or, net, $2.40; insurance, custom entry and brokers' fees, $0.48; duty on drums, at $6 each, rate 30 per cent., $1.80 per drum, or $3.60 on two, less 20 per cent., $2.88; total, $15.50 cost on 16 hundredweight, or 1,792 pounds, equals 15 50-100, or eight hundred and sixty-five one-thousandths of a cent per pound. Cost on aniline oil, year 1913, is 8.77c. per pound; therefore, eight hundred and sixty-five one-thousandths of a cent equals, say, 10 per cent.

Contract orders at the beginning of the year were filled on a basis of 8⅝@9¼c. for aniline salts and 10⅛c. for aniline oil. Later in the year these figures were revised to 10½@10⅝c. for aniline oil, but large consumers were said to be able to shade the inside quotation. Imports of aniline salts for the past three calendar years were:—

	Pounds.	Value.
1913	4,486,899	$323,457
1912	4,471,139	354,226
1911	4,827,359	406,213

Imports of aniline oil and aniline salts for fiscal year ending June 30, with comparisons were as follows:—

IMPORTS OF ANILINE OIL.

	Pounds.	Value.
1913	1,950,620	$204,758
1912	1,843,443	175,120
1911	1,917,202	186,332
1910	1,946,805	199,105
1909	1,950,620	204,758

IMPORTS OF ANILINE SALTS.

	Pounds.	Value.
1913	4,976,408	$371,198
1912	4,831,975	386,656
1911	5,133,723	459,196
1910	5,870,905	515,552
1909	6,130,517	543,538

Bichromates.

Contract prices for bichromate of potash for delivery over the year were fixed at 6¾c. per pound, and while there were reports of sales at 6½c. per pound the former quotation was pretty well maintained. Domestic producers control the home trade and imports of bichromates were too small to be given consideration. Quantities of bichromate of potash were exported, most of it going to Japan. Owing to the fact that there are but two producers of bichromate of potash in this country, competition for business has not been keen and prices have been on a steady basis.

Bichromate of soda attracted considerable interest through the year because the selling price was placed at a lower level than had been the case for a long time. The contract price for the year was placed at 4¾c. per pound. According to the contract used in this trade consumers are free to buy stocks from month to month from the lowest seller on the market. This protection clause has been of considerable benefit to consumers in the past year for by the contract they are guaranteed against increases in price and at the same time are in a position to buy at prices lower than those mentioned in the contract in case sellers are offering material at such prices. Apparently production of bichromate of soda was larger than demand for sellers were reported to be carrying heavy stocks through the year and keen selling pressure arose in an attempt to diminish these stocks. Prices declined to 4½c. per pound and many sales were made on that basis all through the year. This quotation was f. o. b. works. During the fall months some sales were made on a basis of delivery which are said to have been below the basis of 4½c. f. o. b. works. Dealers were offered material at 4⅝@4¾c. per pound.

Official figures of imports of bichromate of potash for the fiscal year, together with comparisons, are:—

	Pounds	Value.
1913	27,671	$2,601
1912	24,094	2,273
1911	22,880	1,699
1910	877,151	43,037
1909	171,542	12,330

Imports of bichromate and chromate of soda were:—

	Pounds.	Value.
1913	9	$3
1912	.....	.....
1911	11	1
1910	2,664,317	101,687
1909	2,412,032	97,661

Cutch.

Shipments of cutch from Rangoon to all parts for the year were 2,450 tons against 4,100 tons in 1912 and 6,250 tons in 1911. These shipments furnished a good index to the extent of consuming demand. An improvement however is noted in the quality of the cutch brought into this country and greater care has been taken at primary points to prevent exports of adulterated cutch. Demand for cutch from domestic consumers has been of a declining tendency. At the beginning of the year cutch was quoted at 4⅞@6c. per pound according to quality and package. Prices through the year were subject to scarcely any change and the above named range would cover the fluctuations. The material has felt the influence of manufactured dye and tanning materials and in common with the other natural products, has declined in consumption because of the growing preference for the former materials. Other consuming countries were moderate buyers of cutch through the year and conditions there were similar to those reported in the local market.

Dextrine.

Trading during the year was again featured by many changes in market

quotations. The tendency of values during the first eight months was upwards and values advanced from a low level of $2.40@2.50 early in January to the high point of $3.22@3.33 in September. Values declined in the last quarter of the year and prices closed at $2.72@2.83. Imports of dextrine for the fiscal year with comparisons were—

	Pounds.	Value.
1913	.....	.....
1912	5,352,277	$188,332
1911	6,357,790	190,660
1910	6,391,762	202,103
1909	6,062,353	184,476
1908	3,958,925	122,870

Gambier.

The market for gambier has been noted for the low prices which ruled throughout the year. In January 4⅞c. per pound was asked by sellers, but soon after the opening of the year gambier was quoted at 4¾c. An easy tone was noted for practically all the year and at the close and some time previous prices were down to 4@4¼c. per pound. Some sellers pursued the policy of selling gambier on a basis ex-dock and offered this position regularly at prices below those quoted for goods ex-store. Great Britain showed a poor demand for gambier, and the falling off in consumption there helped to weaken prices at primary points. Imports into the United States again declined, total figures for the year being below those of 1912 which in turn showed considerable loss as compared with those for 1911. These figures show that consumption of gambier is slowly declining, for the decline in imports can not be accounted for on the ground that carry-over stocks were large, for such was not the case. Monthly arrivals of gambier at domestic ports with comparisons for last year were as follows:—

	1913. Pounds.	1912. Pounds.
January	2,883,361	1,366,925
February	517,030	605,108
March	814,784	2,241,144
April	1,408,040	1,407,888
May	1,085,634	994,497
June	422,048	755,902
July	1,587,238	930,016
August	1,966,613	1,829,888
September	510,890	1,860,490
October	2,581,761	2,066,806
November	518,975	2,073,035
December	2,044,853	1,185,337

Imports for the past four calendar yars were as follows:—

	Pounds.	Value.
1913	16,329,756	$658,038
1912	17,317,036	875,688
1911	23,934,760	1,134,871
1910	19,871,722	1,077,172

Shipments in tons from Singapore from January 1, to December 31, compare as follows:—

	1913.	1912.	1911.
United States	5,600	6,350	7,740
Great Britain	2,660	3,155	3,335
Continent	6,460	7,030	5,445
Totals	14,720	16,535	16,520

Indigo.

The first general memorandum on the Indian indigo crop of the season 1913-14, issued by the Commercial Intelligence Department of India, states that on the average of the five years ending 1911-12, the area under indigo in the provinces dealt with in this memorandum represented some 99.9 per cent. of the entire area under indigo in British India.

In the five years named, the average total area of the reported indigo crop in these provinces was some 300,000 acres, while that in 1912-13 was 195,700 acres. The total area of the present season is estimated at 149,100 acres, which represents a decrease of 46,000 acres, or 23.8 per cent., on the figure for 1912-13. As compared with the average of the five years ending 1911-12, the present area falls short by some 50 per cent. The total yield of dye is estimated at 22,300 cwt., which is less than last year's figure by 45 per cent.

In addition to the areas for which particulars are given above, the crop is grown on a very limited scale in Upper Burmah, and the average area so grown for the last five years has been some 300 acres. An addition of approximately 0.1 per cent. should be made to the estimated outturn for India on this account.

The crop suffered more or less through excessive rainfall in Bihar and in the eastern districts of the United Provinces, and through drought in the Punjab and in the western districts of the United Provinces. Elsewhere conditions are reported to have been fair to good.

The following is a summary of the provincial reports. The figures in brackets following the name of each province indicate what percentage of the total indigo area of British India is ordinarily cultivated in that province:—

Bihar and Orissa (39.4 per cent.).—The total area sown is estimated at 63,100 acres, as compared with 90,100 acres last year—a decrease of 30 per cent., attributed to the drop in prices in the Calcutta market. Excessive rainfall affected the growth and out-turn of the crop. The total yield is estimated at 10,500 factory maunds (equal to 7,000 hundredweight), as compared with the trade estimate of 8,500 factory maunds (equal to 5,700 hundredweight). Last year the official estimate was 21,900 maunds (equal to 14,700 hundredweight), against the trade estimate of 20,000 maunds (equal to 13,400 hundredweight).

Madras (31.7 per cent.).—The total area under indigo is estimated at 33,000 acres, as compared with 37,100 acres (revised figures) last year—a decrease of about 11 per cent. The condition of the crop is reported to be fair, and it is expected to yield 65 per cent. of the normal. On this basis the total yield is estimated at 6,700 hundredweight, as compared with 13,300 hundredweight reported last year—a decrease of nearly 50 per cent. It may be noted that the acreage reported last year—60,100 acres—has been revised this year by the provincial director to 37,100 acres, while the estimated out-turn for that year—13,300 hundredweight—remains unchanged.

Punjab (14.9 per cent.) now reports the total area to be 25,000 acres, as compared with 37,900 acres last year—a decrease of 33 per cent., attributable to a poor supply of water in the inundation canals, and to the decreasing popularity of the crop. The yield of seed is estimated at 706,100 sers (equal to 11,990 hundredweight) and of dye at 231,300 sers (equal to 3,900 hundredweight).

United Provinces (11.7 per cent.).—The total area now reported is 24,400 acres, as against 26,900 acres last year—a decrease of 9.3 per cent. In the eastern districts slight damage was done to the indigo crop by excessive rain, and in the western districts by drought; but the out-turn has not been much affected. The total yield is estimated at 4,500 factory maunds (equal to 3,000 hundredweight), compared with 5,200 maunds (equal to 3,500 hundredweight) last year. The quantity available for the Calcutta market will probably be less than the estimated out-turn, as some portion of the dye is consumed locally.

Bombay and Sind (1.8 per cent.).—This is the first time that a report has been prepared for the Bombay presidency. The total area in the British districts is reported to be 2,400 acres, against 3,300 acres last year—a decrease of about 27 per cent. The crop is reported to have done well. The yield is estimated at 600 hundredweight. The native State of Khairpur reports an area of 3,700 acres, estimated to yield 1,000 hundredweight.

Bengal (0.4 per cent.) reports the area sown to be 1,200 acres as compared with 1,000 acres last year—an increase of 20 per cent. The yield is reported to be 100 hundredweight, being the same as last year.

The exports from Calcutta of the past season's crop during the seven months, April to October, 1913, were 4,956 cwt., compared with 3,221 cwt. in the same months of 1912 from the crop of 1911-12.

Imports of indigo for the calendar year with comparisons were:—

	Pounds.	Value.
1913	7,745,125	$1,137,569
1912	8,032,305	1,211,541
1911	7,194,136	1,122,703
1910	6,787,497	1,148,884

These figures include both synthetic and natural indigo with the former making up the majority of imports. The following figures show imports for the fiscal years:—

INDIGO, CRUDE.

	Pounds.	Value.
1913	7,712,488	$1,102,893
1912	7,697,482	1,169,473
1911	6,908,751	1,152,518
1910	7,636,690	1,195,942
1909	6,249,975	1,460,280
1908	6,078,073	1,058,254

INDIGO, CARMINE.

	Pounds.	Value.
1913	16,329	$9,986
1912	9,047	5,903
1911	12,575	8,144
1910	17,869	11,598
1909	23,772	15,385
1908	9,439	6,098

INDIGO, EXTRACTS OR PASTE.

	Pounds.	Value.
1913	242,998	$43,417
1912	223,687	45,984
1911	105,493	14,785
1910	142,851	16,435
1909	148,454	17,897
1908	240,291	14,391

Myrabolans.

The market for myrabolans, especially for No. 1 nuts, remained firm throughout the year. Scarcity of offerings at times caused sellers to ask higher prices for their goods. Consuming demand was not active except at periods and total consumption is not gaining ground. Prices were steadied almost entirely by conditions at primary points. Sellers quoted at $25@32 per ton at the close of the year and at times $28@34 per ton was asked Towards the close of the year $28@33 was the market quotation. Imports of myrabolans into the United States for the fiscal year, with comparisons, were as follows:

	Pounds.	Value.
1913	19,735,724	$195,264
1912	22,797,639	185,277
1911	23,595,695	184,513
1910	55,445,896	484,570
1909	42,667,676	441,584

Prussiates.

The market for prussiates was in a complicated position at the beginning of 1913. During 1912 some foreign makers had stopped producing owing to difficulty in obtaining raw material. With good consuming demand and supplies reduced to very small proportions prices had risen to high figures and yellow prussiate of potash was quoted at 21c. per pound by local sellers, and it was difficult to obtain large stocks at any price. Shipments were held at 18c. per pound but naturally these prices were not attractive to consumers and trading was restricted to nearby needs. The high prices asked for prussiate of potash turned attention to prussiate of soda and demand for the latter was good, which caused prices to be maintained at 12c. per pound. Before the end of January yellow prussiate of potash became more plentiful and as demand was very quiet prices receded to 18½c. per pound. Late in the month contracts were offered at 16½c. Prussiate of soda then was held at 11@12c. and red prussiate of potash at 26c. The market then remained firm for some time, though contracts on yellow prussiate of potash were offered at 16c. and considerable business was done at that figure. A feature of the market in the first four months of the year was the fact that yellow prussiate of potash was being delivered here on contracts placed a year before and the price was under 13c. per pound. When the changes in the tariff schedule were announced it was seen that prussiates were affected and a considerable cut was noted in the case of red prussiate of potash. With import duties lowered it was natural to look for lower prices in the latter part of the year and such was the case, as yellow prussiate of potash was quoted at 14c. on spot and 13¾c. on shipments, prussiate of soda at 10c. per pound on spot and 9¾c. on shipments. Red prussiate of potash was offered at 21c. per pound. Imports of prussiates for the past five fiscal years compare as follows:—

IMPORTS OF PRUSSIATE OF SODA.

	Pounds.	Value.
1913	1,887,369	$118,475
1912	1,646,344	90,654
1911	1,196,661	66,971
1910	1,259,840	76,684
1909	1,962,068	123,880

IMPORTS OF YELLOW PRUSSIATE OF POTASH.

	Pounds.	Value.
1913	2,812,408	$309,302
1912	2,072,761	203,295
1911	1,777,313	180,584
1910	2,330,871	229,907
1909	1,962,068	178,740

IMPORTS OF RED PRUSSIATE OF POTASH

	Pounds.	Value.
1913	65,316	$11,302
1912	71,612	11,264
1911	55,082	10,230
1910	65,777	12,460
1909	77,255	13,522

Starch.

In November the Bureau of Census issued a statement to the effect that a total of 677,535,647 pounds of starch of all kinds, valued at $17,514,823, was manufactured in the United States in 1909, as compared with 325,695,335 pounds, valued at $10,927,538, produced in 1904. The production of cornstarch increased 327,684,552 pounds, or 105.3 per cent in the five-year period. This large increase was due entirely to increased domestic consumption. Starch made from wheat and roots decreased 4,008,255 pounds, or 22.5 per cent., in the same period. Root starch was reported from Florida only. California Connecticut, Massachusetts, Michigan, New Jersey and New York reported starch made from wheat flour and in each of these States, except California, cornstarch also was made.

Prices for starch were subjected to frequent changes, with fluctuations in prices for raw materials, increase or decrease of stocks, etc., being attributed as reasons for the price changes. At the beginning of the year $1.75@1.86 was quoted for pearl starch. This soon declined to $1.75@1.81, which was the low price of the year. The high point of $2.44@2.55 was in effect in the latter part of August and the first week of September. Prices then eased off a little but in December successive declines brought the price down to $2.04@2.15, at which figure the year closed.

Imports of starches, etc., during the fiscal year ending June 30, with comparisons, were as follows:—

	Pounds.	Value.
1913	15,179,711	$429,703
1912	15,131,654	458,359
1911	8,401,899	274,290
1910	.....	290,893

Exports of starch for the past four calendar years were:—

	Pounds.	Value.
1913	170,897,591	$2,609,716
1912	97,816,865	2,120,537
1911	128,264,786	2,535,572
1910	101,434,527	2,262,849

Zinc Dust.

The feature of zinc dust has been the sharp break in prices quoted during the latter part of the year. Early in the year the price for large lots was held at 7⅝c. per pound, but an easing off in prices of spelter caused this to decline gradually to 7c., but when the tariff was cut under the new schedule a decided change was brought about and foreign material was offered on a basis c. i. f. New York at 4.85c. per pound, so that the delivered price in New York, duty paid, was a shade under 6c. per pound. Before the tariff was ratified a good business was done at this figure, with the proviso that prices depended upon the final passage of the tariff law. Stocks of zinc dust were held in bonded warehouses until the new tariff became effective and withdrawals then became very heavy. Imports of zinc dust during 1913 amounted to 4,382,470 pounds, valued at $227,585.

Trade Conditions as Viewed by Representative Houses

The New Jersey Zinc Company, New York, H. G. Clopper, General Sales Manager.

The year 1913 was not one to establish new high records in any direction, although oxide of zinc was, perhaps, in better demand than many other commodities. The outlook for the year 1914 is extremely promising and fundamental conditions are sound. Our customers in general report their trade as good. Deliveries of oxide of zinc in January indicated a large consumption during the year 1914.

F. W. Brode & Co., Memphis, Tenn.

The cottonseed oil situation for the present season has been devoid of very wide fluctuations; the market has kept within about 40 points the entire season after the premium from the early oil was taken.

The mills are now on their wind-up crush, the seed receipts have practically ceased, and what seed the mills have on hand represent raw material paid for; most of their obligations have been taken care of and they are more or less independent, as far as being compelled to sell their products as made is concerned. It is a well-known fact that the amount of edible oil from this crop is far short of the amount produced from last year's crop, and it remains to be seen just how low grades of off oil can be used for compounds and for tenders on P. S. Y. contracts. Of course, the future range of values depends a great deal on the course of the lard market, which here of late has held up very well in the face of reported dull demand. Also on the breadth of the speculation in the P. S. Y. New York market.

John Clarke & Co., New York.

The spice trade during 1913 went through a peculiarly unsettled and unsettling year. The imposition of the new tariff of from ¾c. to 18c. per pound on various spices in their crude state—where spices (excepting red peppers) had been free of duty for 30 years—made necessary wide readjustments of values, complicated by unusually wide divergency of crops, some articles being heavily underproduced and others overproduced. Values, as a rule, generally and sharply declined during the year, partly owing to the liquidation of spot supplies here and in Europe on account of the heavy decline in coffees, and the long period of financial uncertainty, as well as the tariff agitation. The year 1914 finds stocks of spices the world over, sharply reduced; in many cases to the smallest available total in very many years. Since January 1 there has been a steady growth of confidence, with broadening of trade in all markets. The consumption of spices being so small per capita, is seldom acutely affected by any causes such as financial depression, etc. Manufacturers, distrubters' and grinders' stocks have been permitted to get so low in volume that the reduced visible supplies in first hands, here and in Europe, are palpably insufficient for even routine needs specially with the resumption of a larger unit for replenishing by such consumers, as the movement is perfectly natural and normal, higher prices are likely for 1914, with the continuous demand, increased consumption (due to the pure food movement), and the easiness in money.

Mitsui & Co., New York.

As far as oils and fats, we can say that our business in these lines has been fair for 1913, and we expect more activity for this year especially when the price declines from the present level.

Heller, Hirsch & Co.

The season of 1913 to 1914, from say March to March, compares very favorably as to volume of business and its satisfactory condition.

We believe that the fertilizer manufacturers will have a good and satisfactory season, because, scarcity of ammoniating materials had driven the price of these up so extensively and so easily during the past summer months that none of the fertilized manufacturers have had any appreciable supply of ammoniating materials contracted for at the low prices prevailing prior to the advance.

This removed the temptation so apparent in previous seasons to cut prices of the complete fertilizer, just because here and there, the manufacturers had been able either to carry over cheap ammoniates from the previous season or to pick them up early in the season.

With high-priced raw materials most fertilizer manufacturers are on about an even basis this year, and there ought to be no such injudicious price cutting as has heretofore helped to make the season's fertilizer business most unprofitable for many of the fertilizer companies.

We are wondering what the government investigation will finally discover about the cause of the advance in the nitrogenous raw materials, and whether Congress will be called upon, after they get through with their investigations into this subject, to abolish that well known though very unpopular law, namely, the "law of supply and demand."

There happened to be, as an illustration, a very large demand for fish guano, fish scrap, whale guano, etc., etc., and notwithstanding the fact that the demand exceeded the supply, there is, nevertheless, a great deal of agitation going on to ferret out the cause for the advance in the price of these raw materials, and the resulting advance in fertilizers composed of these higher-priced materials.

The same excitement does not appear to permeate legislative bodies in connection as to why the price of acid phosphate and of Florida phosphate rock has so radically declined during the same identical period of time that the flesh and fish products have so violently advanced.

If these declines in the price of phosphates are noticed at all they will be ascribed offhandedly to "competition" instead of to "overproduction"

and lack of sufficient consuming demand to absorb this overproduction.

It strikes us, hwever, that the low level for phosphate rock, and necessarily acid phosphate, has been reached, and that higher prices will prevail in the not very distant future, and then the Congressional investigating committees will become greatly mystified. If the fertilizer business will be left alone by Congress and the "Rural Organization Service," and it the legitimate business of the fertilizer manufacturers and the fertilizer dealers will be protected against political or legislative interference, that industry can be relied upon to be, and continue, in a healthful condition during 1914.

The farmer in every section of the country, especially in the cotton states —which latter consume more fertilizer than all the other sections of the country combined—are in first class condition as a result of bountiful crops of cotton, cottonseed meal and the resulting cotton oil, and also crops of tobacco and cereals, which make the Southern farmer and planter independent and affluent.

Collections in that country are good and promise to continue being good, so that it may safely be stated that the fertilizer industry is in a healthful condition.

E. C. Lufkin, President, The Texas Company, New York.

Our business has been exceedingly good during 1913, and we have every reason to believe that it will be even better during 1914.

W. A. Hover & Co., Denver, Colo.

While the volume of 1913 business very closely approximated previous year's business, it was done without any snap or life, and consisting for the most part of the absolute daily requirements of our trade; small and frequent orders being the rule. This, notwithstanding more favorable conditions in our territory than had been the case for a number of years. Particularly in the agricultural districts.

We do not look for a material improvement durnig 1914. The uncertainty of the outcome of the new tariff bill and the results of the provisions of the reserve bank act are so considerable as to materially effect confidence on the part of investors in undertaking new enterprises, or any considerable expansion in connection with the enterprises in which they are already interested.

In this territory at least it is our opinion that our transactions will cover only the daily consumption and demands of our consumers. Developments of all kinds will be more or less at a standstill until results of the measures referred to above have been fully determined.

Louisville Cotton Oil Company, Louisville, Ky.

We consider the season of 1913 a very good one so far as business success is concerned, but we believe that a number of incidents occurred during the past year which, if eliminated, would make the cottonseed oil business more pleasant from every standpoint for the year 1914 as well as the future years.

For instance, if some method could be obtained to avoid the violent fluctuations that occur from time to time, we believe it would have the effect of making business more regular and allowing the buyer and seller of the oil a legitimate profit, so as to do business without a loss, regularly, as every one is aware that, while these wild fluctuations occur, it forces buyers and sellers at different times to sacrifice their products, and it also makes the banks and bankers uneasy when it comes to loaning money on cottonseed oil. Besides this, if the government can see their way clear to arrange a policy of duties on foreign goods whereby the foreign governments would be forced into reducing the duties on cottonseed oil, it would have a tendency of increasing the demand for this product, and thereby have one way of reducing the fluctuations which occur from time to time.

We believe that methods are now being taken along the above lines that will improve conditions in the future, and for this reason, as well as the demand that is coming from the household for an edible product, such as the first-class refiners are now turning out, will have the effect of improving conditions of cottonseed oil from year to year, as the housekeeper is beginning to realize this product is of considerable advantage over other cooking fats when properly understood.

We believe the future of the cottonseed oil business rests on the education of the householder from a publicity standpoint, and for this reason believe the Interstate Cottonseed Crushers' Association publicity bureau is doing good work and we also believe that the cottonseed oil business when properly handled has a bright future before it.

Thurston & Braidich, New York.

While at the start of last year conditions did not appear to be all that could be desired, the year closed to our entire satisfaction, and from the business done so far this year, with the increased number of inquiries coming in, we have every reason to believe that 1914 will also turn out all right.

McKesson & Robbins, New York.

In the main, business has been good in 1913 inasmuch as sales have been equal to 1912 and credit losses have been light; on the other hand, sales profits have been small and the markdowns on merchandise have been many at the close of the year. A great deal of attention has had to be given to the schedules in the new tariff and increasing vigilance to proposed new laws and laws enacted regulating the drug and chemical trades. Looking over the tariff we find more articles increased than reduced—articles like orris root, lavender flowers, saffron, etc., formerly on the free list, must now pay 20 per cent. Coca leaves were advanced from 5 to 10 per cent. Ergot, buchu, anis oil and balsams were taken from the free list and taxed at 10 per cent. Manufactured articles, cream tartar, Rochelle salts, tartaric and citric were reduced and strychnine was made free.

Peter-Neat-Richardson Co., Louisville, Ky.

The year which has just passed had many vicissitudes, but the present indications are that it was not so bad a year as many feared it would be. The failure of some crops was compensated by the excessive productions of others. There seems to be a spirit of confidence in the outlook for the new year which is very hopeful.

Competition becomes more acute as population increases and yet as a whole the times seem bettter and the general confidence in the government and its purpose to serve the public seems to be growing.

The adoption of the standard of purity as set out in the Pure Food and Drug law has been of great benefit to those who maintain the standard of purity in the articles they handle and has done much to educate the public as to the value of fair dealing.

German Kali Works, New York.

The first nine months of 1913 were rather disappointing to the potash trade, owing to depression in the fertilizer market. The last three months, however, were very satisfactory and large orders were booked for shipment during October, November and December. This improvement was chiefly due to improved conditions in the fertilizer market and to satisfactory crops. In the second place, however, owing to an approximate 3 per cent. advance in potash prices effective January 1, 1914, many large orders for our products were placed by manufacturers desiring to take advantage of the 1913 prices.

Notwithstanding the fact that a large tonnage was booked during the late months of 1913, it now appears, in view of the encouraging prospects for a good spring fertilizer season, that many buyers underestimated their requirements. As result, we have booked a very satisfactory tonnage for January and February shipment this year, and orders in good volume still continue to come in.

It is regrettable that many buyers of potash salts frequently underrate their requirements and with the approach of the fertilizer season, send in rush orders expecting prompt shipment. During the first months of every year it is exceedingly difficult to arrange whole cargoes to Southern ports, and again for Northern ports the traffic is invariably so heavy that freight room is sometimes unavailable. Under the circumstances buyers are often exposed to delays beyond the control of shippers.

We are experiencing this annual condition this year and present indications point to a repetition of a potash shortage similar to former seasons.

John Lucas & Co., Inc., Philadelphia, Pa., Ernest F. Trigg, Vice-President.

We found trade during the year 1913 of a very satisfactory nature, with the exception of some of the large industrial and corporation trade, which during the last six months of the year was not as active as usual.

Business this year, has started out in excellent condition and we anticipate an increase in volume for the year. Indications all point to increased activity in practically all lines, and we are quite optimistic.

The Fred G. Clark Company, Cleveland, O.

As a whole last year was an extremely good year for petroleum refiners and jobbers. There was a large demand for petroleum products at a fair price. Within the last four months the scene changed, however, and I do not think I have ever known the business to be in a worse condition. A $2.50 Pennsylvania crude market and a reduction in almost of all the products, has made it almost impossible to make ends meet; in fact, as far as the independent refiners are concerned, they are, so to speak, in a pocket and there has to be a change one way or the other or they cannot exist.

New York Quinine & Chemical Works, New York.

We are glad to say the results for the past year proved beyond our expectations, and the outlook for 1914 is most promising. The present tariff measure did not materially effect the products manufactured by this company.

Wm. Zinsser & Co., New York.

The year 1913 was an exceptionally good one with us and we saw no evidence that same was an off year in any way. It was considerably better than any of many previous years.

We feel that the year 1914 will be a still more prosperous one, because for the first time in a considerable period the country can steady down to healthy, normal business conditions as tariff and currency matters have been definitely settled, at least for some time to come.

We find the spirit of optimism for 1914 business prevalent in all sections of the country and we hope that this spirit of business cheerfulness will make the year just begun one of the banner years in the history of this country.

National Aniline & Chemical Co., New York, I. F. Stone, President.

So far as we are concerned, our general business for 1913 was about normal, there being no decided change one way or the other from previous years. It is our opinion that for 1914 the conditions will remain about the same as we se no reason for any particular boom in business, nor do we see any reason for any particular decline; in fact, it is our experience that the drug and chemical business, as a rule, is more or less stable and not so much affected by any unusual conditions which are apt to affect business which is more or less specialized.

The recently passed currency bill will in our opinion ease the money market to such an extent that the railways and building lines will again develop in line with the continued prozress of the country, where for some months past they have been held back by failure to get money to continue such development, and with these lines prosperous, the general business of the country will flourish accordingly.

Parke, Davis & Co., Detroit, Mich., Frank G. Ryan, President.

During the lear 1913 the business done by Parke, Davis & Co., was the largest of any year in its history, both in domestic and foreign sales, notwithstanding the interference with foreign trade due to the Mexican situation, and the generally depressed condition of trade in the United States. This would seem to indicate that the sale of medicinal products is not so greatly affected by depression as are the sales of many lines of manufactured products.

With this experience in 1913 one cannot help feeling that the coming year will be even more satisfactory, the outlook for general business being much brighter than it was a year ago.

Wilckes Martin Wilckes Co., New York.

In compliance with your request for an expression of our views on conditions obtaining in our business during 1913, and the out-look for 1914, we have pleasure in stating that our sales for 1913 have been substantially equal to those of 1912—which were entirely satisfactory from every standpoint.

We believe that this condition has been more or less general. While there has been a slight depression, it is our opinion that this was due to unsettled conditions brought about by the new tariff and currency reform, which were under way, and imitations from the present administration of their determination to prosecute combinations made in restraint of trade, wherever found.

This has been further augmented by the upheavel of the conditions obtaining in Mexico by reason of their internal dissensions.

Looking over the causes of the conditions, while the present tariff is not entirely to our liking, at the same time, we believe that the changes were made in good faith, and with an honest intent and with no desire to injure anyone, and that if they are found defective in any point, they will be remedied. This matter, however, should be in the hands of a competent tariff commission.

So far as the currency reform is concerned, we confidently believe that the bill just passed will be entirely satisfactory to the country, and places it on a better basis in times of distress than it has eved been before.

So far as the prosecutions of corporations are concerned, the "bug-a-boo" has been disposed of to a great extent by the president's recent statement that the Government is prepared to meet big business in a friendly spirit, and to extend a helping hand to assist them to operate in accordance with the "new way" and to accomplish this in a manner so as not to interfere with their present business.

In regard to the Mexican situation, I think we are all agreed by this time that the administration has concluded not to embroil us in any war over difficulties which that country alone should adjust, and which could not possibly be adjusted by us without great expense and loss of life.

In conclusion, it is our judgment that there will not be any further recession of business, and when once the people have adjusted themselves to the new situation, affairs in general will be a firmer basis than heretofore.

The foreign countries will not rush into this market on account of their past experiences, so we confidently look forward to 1914 being, on the whole, a very satisfactory year.

Woolner Distilling Company, Peoria, Ill.

While we do not look for any especially large year in our line for 1914, we are confident it will be up to the average years. We feel very much encouraged over the passage of the tariff bill as the price of our product hinges on the grain values, and we feel that the putting of cereals on the free list will eventually reduce the price of alcohol, as it will stop the cornering of the markets and the creating of fictitious values. The arguments against tariffs have very little standing in our opinion, as labor through its organizations will protect itself and manufacturers in all lines are organized so that ruinous competition cannot take place any more as the concentration of the industries into large units puts the manufacturing business of the country in very safe conditions.

Just at the present time, we still suffer from the high price of cereals, owing to the drought of last summer, but we look for very reasonable prices on denatured alcohol in the very near future.

The Sherwin-Williams Co., Cleveland, Ohio, Walter H. Cottingham, President.

Walter H. Cottingham, President.

Last year was a very fair year for the paint and varnish trade, as the volume was satisfactory, running ahead of the previous year. Raw material costs were lower, but, owing to high costs in other directions, the net results have generally, I believe, not improved.

We have found business the last few months quiet, but still not much short of the same period a year ago. Since the first of the year we have noted considerable improvement and look forward to a good spring trade, particularly as we think stocks in the country are not large.

National Lead Company, New York, William W. Lawrence, President.

Our tonnage for the year 1913 was very nearly the same as for the previous year. Certain lines were especially good, but these were offset by lines in which the volume of business was materially lessened, so that we regard ourselves fortunate, under all the circumstances prevailing during the year just passed, to find that we have ended the year with a tonnage about equal to that of the year 1912.

In regard to 1914, we believe now that the tariff and currency bills have been passed, and that the president has taken a position in regard to business which cannot be criticised, that gradually business will expand and that sometime during the summer or fall we may expect a very material increase in volume. Therefore, unless some unlooked for cirsumstance intervenes, we trust the year 1914 will be one of prosperity for the various lines of trade in which we are interested.

Picher Lead Company, Chicago, R. W. Evans, Treasurer.

Our busfness for 1913 was in excess of any other year of our existence. However, the last two months of our fiscal year, November and December, did not show an increased volume over the same months of the year preceding, but since January 1, the tonnage offered has been very satisfactory.

For 1914 we expect about the usual business during the first six months, but we fully believe that for the last six months of the year a larger volume of business will be done. There has been a quick change in the sentiment of business men during the past four weeks, and buyers are more free in placing requisitions. Our anticipation of a large business during the last half of this year is based partly on our belief that the railroads will be granted the 5 per cent. increase in freight rates, which we believe they should have, providing the money received on account of this increase is properly used. This, no doubt, will be provided for.

We cannot help but believe that the paint manufacturing business will be good during 1914, and consequently, our business should show a satisfactory volume because we deal exclusively with the manufacturing industries.

Niagara Alkali Co., Niagara Falls, N. Y., H. D. Ruhm, Vice-President.

In our principal line of business, caustic potash, we are still subjected to the same fierce assault by the importers of this material produced by foreign manufacturers, which have been in evidence for the past four years, resulting in the very heavy reduction of price from 6c. to 4. per pound for wholesale base prices.

Our business is increasing in a fair-

ly satisfactory measure and it look as if the American consumers of caustic potash are sure to profit still further from the vindictive fight made by the importers aforesaid. While this fight has been made purely for the purpose of killing off our competition, at last reports the corpse is fairly lively still.

In our other products we have felt for the past few months somewhat the general trade conditions which appear now to be rapidly improving, so that on the whole we have every reason to anticipate a very satisfactory business for the year, everything considered.

We have just completed and placed in operation our new plant, trebling the output of our old plant, and we see no reason to discontinue our former feeling of confidence that the American consumer will ultimately give reference to the American manufacturer wherever possible.

Eli Lilly & Co., Indianapolis, Ind.

Business last year was quite satisfactory and we look forward to the prospects for 1914 with confidence. We see no reason why the trade should not enjoy a prosperous year.

Chas. Morningstar & Co., New York.

The past year was a very satisfactory one in our line and that we look forward to this year for the sanest and most reliable business conditions this country has known.

Ferguson Brothers, Philadelphia, Pa.

In reviewing the drug and chemical trade for 1913 we are of the opinion that the volume of business showed a large increase over 1912. In fact, in a number of cases, although 1912 was a larger business than 1911, yet the increase for 1913 materially exceeded that of 1912. While, however, the volume of business was increased, there was not a proportionate increase in profits, for with some houses in our city the profits were less than the year before, although the increased business required the use of larger capital and a great deal more labor.

Early in the year the tinkering at the tariff began and importers and manufacturers were kept in suspense until the close of the summer and while the changes were generally downward it would seem that they were not sufficient to create any great disturbance. Many of the heavy chemicals were on the free list and others very nearly so. As was expected by those who were familiar with downward changes in the tariff on previous occasions, the foreign manufacturers soon advanced their prices and took advantage of the decline and kept the difference entirely from the consumer, so that the latter did not get the anticipated benefits. This was markedly the case in bleaching powders, as well as in some other articles. However, the business of the country seems to have gradually adjusted itself to the changes and we do not think it will have any marked effect upon the business for 1914.

The wholesale jobbing druggists were much annoyed at the changes in the patent medicine business, but these seem to have largely passed away and some of our largest and best informed houses think that the business will soon be on a profitable footing again.

It seems to be the concensus of opinion that 1914 will be productive of a good, healthy general business and we think there is no chance of any legislative interference that will mar its progress.

We need only hope to look for a good business during 1914.

Berry Brothers, Detroit, Mich.

Our business reminiscences of 1913 are satisfactory, both as to volume of trade and all other desirable features.

In our opinion the outlook for 1914 is decidedly encouraging, and we are confirmed in this idea both by tangible evidence and the reports of our salesmen and representatives from all over the country, which warrants us in regarding the outlook as satisfactory.

Our feeling of optimism also extends to the attitude of the government toward business and its ramifications, and we cannot see any reason why the present administration should have anything but a beneficial effect on the commercial interests of the country.

The Solvay Process Company, Syracuse, N. Y., R. F. Hazard, President

The indications during the first half of last year were that we would have a very successful year's work. As is well known, however, the complications created by the advent of a new administration, the disquieting discussions on the tariff bill, the Mexican complications, and the disturbing influence of the unsettled currency measure, combined to make the second half of the year less satisfactory than had been estimated. It is to be hoped that with some of the above disturbing causes now definitely out of the way the results of this year's business will prove as good as the indications for the month of January. There seems to be no real reason why we should not have excellent business.

Shoemaker & Busch, Philadelphia, Clayton F. Shoemaker.

Business generally in this territory during the past year, has been moderate in volume, and the disposition of some houses to cut prices, has no doubt reduced the average profits in our line, and will continue to do so in the future.

I look forward to the future hopefully, however. The settlement of the tariff question, and likewise the passage of the currency bill, I consider a great gain. The success of the latter measure seems assured, and it will no doubt prove of much benefit to the country at large. Should the railroads be granted permission to increase their freight rates, as requested, it would no doubt, give a big start to general business.

Kasebier-Chatfield Shellac Co., New York, H. S. Chatfield, treasurer.

In saying a word for your statistical number, as to the condition of the shellac business, covering the year 1913, and the prospects of the article during the present year, we beg to say the volume and general conditions existing in this article have been excellent. There are no inventions taking liberal quantities of this material, but in the regular and well established industries a steadily increasing consumption has taken place, and there seems no likelihood of a reduction in the amount that will be consumed.

It is difficult to write anything in connection with this article without touching on the speculative feature and wide price of fluctuation, which always has, and undoubtedly will continue in this particular commodity.

The underlying situation of the article is sound and a graual increase in consumption may be looked for in ordinary trade channels. The continued popularity of many commodities of which shellac is a component part, warrants this belief. During periods of high values the substitutes which have appeared have made very little inroad in the normal consumption.

The prospects for the year 1914, with the geneal improvement in business, which to our way of thinking must come, points to a prosperou year's business.

The Advance Grease & Chemical Co., Jackson, Mich., A. J. Callaghan.

With the increasing growth of our business, we are hardly able to judge as to the prospects for 1914 business, but considering this time of the year and the additional orders which we are getting from our old customers for immediate and future shipment from various parts of the country lead us to believe that 1914 is going to be a good year. I believe that business is going to be conducted on a more conservative basis. Our foreign business is very promising.

Samuel H. French & Co., Philadelphia.

Our business for the year 1913 was fairly prosperous, although the last three months of the year showed a decided falling off in volume. The new year has opened with depleted stock in the possession of the jobbing and retail houses; and owing to the uncertain and unsettled condition of affairs, they are purchasing only for immediate wants. This necessarily adds increased cost to the manufacturer who is called upon to make several shipments to equal in quantity orders formerly received for a single shipment. This unusual and extreme caution may, however, be the means of reducing credits and putting business upon a firmer basis.

The recent legislative enactments must necessarily cause more or less anxiety to the thoughtful citizen, who cannot fail to see that the reduced tariff will allow many goods to be imported, which had heretofore been produced in this country, and will, as a result, reduce demand for labor, and to a greater or less extent lessen the purchasing power of the country. The onerous laws which have been enacted in many of the States, purporting to be for the betterment of labor, have in many cases added a material cost to the production of goods, and as we see it, the benefit accruing to the workingman has been but slight, if any; while on the other hand, there has been created a decided tendency towards paternalism which the average American workingman finds extremely objectionable. The business of this country needs less legislation, fewer lawyers in the Legislatures, and more business men to take an interest in politics, in many cases sacrificing their personal interests by becoming members of their respective legislative bodies.

MacAndrew, Moreland & Co., Liverpool.

The past year has been somewhat difficult one for the dealer, as the big consumers now control the markets to a large extent. In some of the markets, prices have kept remarkably steady throughout, although they have remained on a relatively high level. As regards the outlook for 1914, business will undoubtedly continue difficult owing to the same conditions prevailing during this year, and also because our large manufacturers are more and more endeavoring to produce their own raw material. Hardened fats will play an important part during the coming year, and although the results have not been as successful as had been hoped, still these hardened fats will have a marked effect on other material, at the same time we shall not be surprised to see values on a lower level, as trade is not as good as it has been.

Comparative Statement of Exports from Leghorn for 1912 and 1913.

	1912.	1913.	Change.
Boracic acid	$13,394	$16,442	+3,308
Wax	32,773	28,881	—3,892
Juniper berries	11,625	16,146	+4,521
Beans	2,374	12,509	+10,135
Orris root	39,214	59,222	+20,008
Olive oil	2,566,818	2,027,623	—539,195
Soap stock	136,477	244,219	+107,742
Pumice	39,311	8,042	—31,269
Soap	233,330	202,868	—30,462
Sienna earth	32,449	27,577	—4,872
Talc	8,384	12,674	+4,290
Umber earth	11,094	11,016	—78
Argols	100,550	127,204	+26,654
Mercury	18,592	18,677	+85

+ Denotes increase in 1913 over 1912.
— Denotes decrease in 1913 over 1912.

NECROLOGICAL RECORD FOR 1913.

The necrological record for last year comprises the names of fifty-one men who had been associated with the trades represented by the Reporter. A short sketch of the life and business career of each was published in the Reporter. In the following summary are given the names, dates of death, ages and issues of the Reporter in which the respective obituary notices appeared:—

Name and date of death.	Age.	Date of publication.
James H. Caldwell, Dec. 27	74	Jan. 6
Alexander H. Jones, Dec. 23	76	6
Thomas P. Cook, Jan. 7	64	13
Ewen McIntyre, Jan. 8	88	13
Robert K. Waring, Jan. 19	65	27
John T. Whitney, Jan. 26	56	Feb. 3
William Lowrie, Jan. 28	82	3
Gilbert Jordan, Feb. 5	64	10
Josiah Barrett, Jan. 28	66	10
Adolphus Keppelmann, Feb. 4	92	10
Leslie Brinckerhoff, Jan. 28	63	17
Michael Ehret, Feb. 17	70	24
Peter Schreiber, Feb. 13	77	24
James A. Moffett, Feb. 25	61	Mar. 3
Frederick Fisher, Feb. 22	76	3
Albin Garrett, Feb. 27	68	3
James L. Adams, Feb 25	65	3
George Cleveland, Feb. 28	73	3
David D. Grant, March 7	69	17
Frederick W. Devoe, March 21	85	24
John A. Casey, March 19	83	24
William E. Lucas, March 24	66	31
Carl Brucker, March 23	54	31
John E. Leech, April 14	72	April. 21
Abner E. Willis, April 17	60	21
L. H. Butcher, April 21	60	28
C. Leland Harrison, May 13	52	May. 19
Charles C. Fuller, May 11	..	19
Charles F. Husted, May 13	62	19
Henry M. Flagler, May 20	83	26
Henry H. Cumings, May 14	72	26
Frank H. Wyeth, June 12	76	June. 23
William C. Lusk, June 14	67	23
Louis H. Severance, June 25	..	30
Charles F. Blakeslee, July 8	85	July. 4
Welling S. Katzenbach, July 18	29	18
Daniel E. Byles, July 20	60	18
William J. Evans, July 23	61	28
Milton Kerkeslager, Aug. 28	59	Sept. 1
Louis Merck, Sept. 15	59	22
John G. Steenken, Oct. 1	75	Oct. 6
George Anderson, Sept. 27	..	6
Charles F. Hartwell, Oct. 5	71	13
John B. Young, Oct. 21	71	27
Polk Miller, Oct. 20	..	27
T. C. Smith, Oct. 18	73	27
Alfred H. Brainard, Oct. 25	..	Nov. 3
John B. Lennig, Nov. 5	63	10
Frank G. Keatley, Nov. 9	67	17
Washington W. Webster, Dec. 10.	63	Dec. 15
John J. Caffrey, Dec. 15	57	29

Imports Into the United States

[Statistics cover returns for fiscal years ending June 30.]

Acids, Acetic or Pyroligneous.

	Pounds.	Dollars.
1909	1,126,256	178,961
1910	1,069,151	90,785
1911	78,886	6,172
1912	78,331	5,882
1913	39,648	3,036

Acid, Acetic Anhydrid.

	Pounds.	Dollars.
1911	1,170,485	218,676
1912	254,977	44,069
1913	309,643	51,632

Acid, Arsenic or Arsenious.

	Pounds.	Dollars.
1909	584,524	19,517
1910	2,108,854	64,567
1911	3,175,861	95,422
1912	4,735,260	136,378
1913	5,164,768	203,525

Acid, Benzoic.

	Pounds.	Dollars.
1909	491,739	102,513
1910	364,650	82,444
1911	502,878	111,345
1912	470,005	95,740
1913	863,015	133,887

Acid, Boracic.

	Pounds.	Dollars.
1909	230,968	7,641
1910	416,842	13,610
1911	343,094	12,733
1912	276,496	10,540
1913	362,400	13,897

Acid, Carbolic.

	Pounds.	Dollars.
1909	4,729,552	321,633
1910	4,507,633	275,600
1911	4,371,014	265,782
1912	5,686,704	521,457
1913	8,345,631	688,771

Acid, Chromic.

	Pounds.	Dollars.
1909	5,240	964
1910	9,375	1,540
1911	8,643	1,456
1912	7,869	1,407
1913	8,522	1,682

Acid, Citric.

	Pounds.	Dollars.
1909	243,010	74,209
1910	142,001	40,967
1911	97,847	28,717
1912	67,332	20,275
1913	8,677	2,916

Acid, Fluoric.

	Pounds.	Dollars.
1909	346	16
1910	.....	.....
1911	160	6
1912	1,117	57
1913	12	5

Acid, Formic.

	Pounds.	Dollars.
1909	809,444	57,329
1910	769,712	53,690
1911	964,345	63,171
1912	678,524	30,674
1913	502,685	22,414

Acid, Gallic.

	Pounds.	Dollars.
1909	54,509	17,075
1910	79,264	23,468
1911	45,964	13,861
1912	28,917	9,701
1913	51,326	17,086

Acid, Hydrochloric or Muriatic.

	Pounds.	Dollars.
1909	8,520	172
1910	1,143	67
1911	.....	.....
1912	.....	.....
1913	440	14

Acid, Lactic.

	Pounds.	Dollars.
1909	185,935	18,022
1910	218,004	17,896
1911	201,371	16,470
1912	335,335	25,267
1913	158,754	19,029

Acid, Nitric.

	Pounds.	Dollars.
1909	130	10
1910	.....	.....
1911	.....	.....
1912	264	13
1913	100	8

Acid, Oxalic.

	Pounds.	Dollars.
1909	9,797,901	621,387
1910	5,835,179	340,985
1911	7,053,899	363,353
1912	7,077,462	351,449
1913	8,046,380	402,960

Acid, Phosphoric.

	Pounds.	Dollars.
1909	144,462	24,503
1910	306,175	47,573
1911	465,007	53,775
1912	454,962	57,635
1913	504,383	76,907

Acid, Phthalic.

	Pounds.	Dollars.
1909	8,128	1,334
1910	39,044	12,861
1911	52,474	14,262
1912	67,362	16,787
1913	75,695	20,511

Acid, Picric or Nitro Picric.

	Pounds.	Dollars.
1909	100,307	16,903
1910	85,210	15,629
1911	47,709	8,277
1912	50,061	9,233
1913	85,068	18,339

Acid, Pyrogallic.

	Pounds.	Dollars.
1909	23,889	24,762
1910	37,167	25,260
1911	22,145	14,188
1912	28,961	22,804
1913	9,512	9,278

Acid, Salicylic.

	Pounds.	Dollars.
1909	1,908	968
1910	64,373	10,478
1911	32,876	5,297
1912	28,769	5,840
1913	31,844	6,500

Acid, Silicic.

	Pounds.	Dollars.
1909	6,553	353
1910	1,430	198
1911	11,698	242
1912	8,897	507
1913	121,344	6,486

Acid, Stearic or Stearin.

	Pounds.	Dollars.
1911	36,610	3,451
1912	67,122	6,762
1913	119,519	12,160

Acid, Sulphuric, or Oil of Vitriol, Not Specially Provided For.

	Pounds.	Dollars.
1909	38,296	660
1910	36,648	1,663
1911	38,079	526
1912	48,846	639
1913	34,624	512

Acid, Tannic or Tannin.

	Pounds.	Dollars.
1909	986	939
1910	8,196	4,371
1911	5,753	2,260
1912	1,010	484
1913	1,540	768

Acid, Tartaric.

	Pounds.	Dollars.
1909	124,774	23,245
1910	36,684	1,663
1911	331,538	72,204
1912	105,311	24,116
1913	78,942	15,747

Acid, Valerianic.

	Pounds.	Dollars.
1909	2,145	1,191
1910	2,562	1,484
1911	1,635	1,088
1912	1,041	891
1913	1,019	860

?ids, All Other Not Specially Provided For.

		Dollars.
1909	.....	47,162
1910	.....	47,615
1911	.....	59,079
1912	.....	58,455
1913	.....	86,539

Aconite.

	Pounds.	Dollars.
1909	.....	.....
1910	.....	.....
1911	7,959	613
1912	21,385	1,721
1913	12,946	1,065

Albumen, Blood.

	Pounds.	Dollars.
1909	265,595	45,957
1910	196,472	29,505
1911	116,439	19,973
1912	166,482	25,200
1913	177,795	27,847

Albumen, Egg.

	Pounds.	Dollars.
1909	408,492	196,658
1910	699,612	268,732
1911	903,504	349,960
1912	1,040,750	329,732
1913	1,246,744	406,594

Albumen Not Otherwise Provided For.

	Pounds.	Dollars.
1909	2,000	286
1910	7,737	1,243
1911	4,054	442
1912	5,959	1,429
1913	15,831	3,421

Alcohol, Wood.

	Gallons.	Dollars.
1909	348	113
1910	13,413	5,696
1911	366	319
1912	157	185
1913	362	387

Alizarin, Natural or Artificial, and Dyes Derived Therefrom.

	Pounds.	Dollars.
1909	3,759,869	1,215,700
1910	3,605,854	647,948
1911	3,188,037	709,909
1912	5,463,096	1,385,529
1913	8,219,087	1,824,973

Alum, Alum Cake, Patent Alum, Sulphate of Alumina and Aluminous Cake.

	Pounds.	Dollars.
1909	2,646,276	24,022
1910	264,922	3,568
1911	1,237,249	11,908
1912	3,037,199	29,196
1913	4,129,160	39,944

Alumina, Hydrate of, or Refined Bauxite.

	Pounds.	Dollars.
1909	20,310	1,524
1910	1,538,619	26,230
1911	1,998,908	32,554
1912	2,367,849	38,294
1913	2,252,156	37,812

Ambergris.

	Pounds.	Dollars.
1909	2	300
1910	21	4,001
1911	171	22,518
1912	17	4,624
1913	38	10,964

Ammonia, Carbonate of.

	Pounds.	Dollars.
1909	414,683	24,752
1910	485,803	26,279
1911	332,877	21,779
1912	344,143	21,551
1913	258,376	16,173

Ammonia, Muriate of.

	Pounds	Dollars.
1909	7,575,483	387,599
1910	12,573,713	616,101
1911	13,351,116	668,025
1912	12,696,437	588,227
1913	10,387,148	504,330

Ammonia, Phosphate of.

	Pounds.	Dollars.
1909	36,894	3,032
1910	41,007	2,321
1911	68,039	4,640
1912	13,894	915
1913	7,433	493

Ammonia, Sulphate of.

	Pounds.	Dollars.
1909	79,453,025	2,014,560
1910	126,356,356	3,126,308
1911	207,486,060	5,301,352
1912	148,208,348	4,143,443
1913	122,224,780	3,660,064

Aniline Salts.

	Pounds.	Dollars.
1909	6,130,517	543,538
1910	5,870,985	515,552
1911	5,133,723	450,100
1912	4,831,075	386,656
1913	4,976,108	371,198

Annatto, Roucou, Rocoa or Orleans, and All Extracts of.

	Pounds.	Dollars.
1909	711,191	48,329
1910	619,372	39,579
1911	632,742	30,445
1912	536,167	34,921
1913	405,024	19,991

Antimony, Oxide of.

	Pounds.	Dollars.
1909	595,095	65,596
1910	414,713	20,407
1911	942,616	50,371
1912	1,079,268	46,671
1913	1,819,323	97,447

Apatite.

	Tons.	Dollars.
1909	2,926	19,023
1910	.....	.....
1911	.....	.....
1912	80	1,140
1913	2,930	22,535

Argols or Crude Tartar, or Wine Lees, Crude.

	Pounds.	Dollars.
1909	32,111,324	2,640,003
1910	28,264,058	2,218,514
1911	29,269,977	2,940,188
1912	25,648,848	2,220,439
1913	29,476,172	2,621,491

Argols, Partly Refined, or Tartars and Lees Crystals.

	Pounds.	Dollars.
1909	3,224	347
1910	34,710	3,893
1911	18,847	3,130
1912	14,502	1,875
1913	5,498	763

Arrowroot, Unmanufactured.

	Pounds.	Dollars.
1909	3,895	102
1910	1,382	140
1911	12,756	514
1912	95,714	5,512
1913	11,327	688

Arsenic and Sulphide of, or Orpiment.

	Pounds.	Dollars.
1909	10,048,793	378,778
1910	5,981,717	218,438
1911	6,916,069	263,766
1912	4,061,035	128,413
1913	8,475,592	354,284

Artists' Colors, in Tubes, Pans, Cakes, Etc.

		Dollars.
1909	.....	109,958
1910	.....	79,882
1911	.....	80,130
1912	.....	104,940
1913	.....	136,894

Ashes, Wood and Lye of, and Beet Root Ashes.

		Dollars.
1909	.....	60,268
1910	.....	60,250
1911	.....	50,973
1912	.....	40,212
1913	.....	36,493

Asphaltum and Bitumen, Crude.

	Tons.	Dollars.
1909	115,754	514,082
1910	128,208	539,744
1911	146,509	692,213
1912	154,508	587,252
1913	188,725	750,685

Balsam Copaiba.

	Pounds.	Dollars.
1909	234,257	73,095
1910	208,566	66,279
1911	191,154	56,918
1912	159,172	50,969
1913	206,447	66,361

Balsam Fir, or Canada.

	Pounds.	Dollars.
1909	4,675	2,375
1910	16,945	8,432
1911	15,788	7,128
1912	3,741	1,741
1913	3,091	1,827

Balsam Peru.

	Pounds.	Dollars.
1909	25,843	24,217
1910	50,363	49,132
1911	37,910	47,840
1912	47,862	65,800
1913	48,996	61,702

Balsam Storax, or Styrax.

	Pounds.	Dollars.
1909	19,582	2,449
1910	19,189	2,226
1911	26,544	3,309
1912	19,139	2,325
1913	35,861	5,223

Balsam Tolu.

	Pounds.	Dollars.
1909	39,668	5,589
1910	46,946	7,178
1911	21,802	3,328
1912	30,970	7,256
1913	37,277	29,552

Balsam, All Other Crude.

	Pounds.	Dollars.
1909	113,561	30,826
1910	137,403	31,681
1911	24,200	12,147
1912	30,391	12,885
1913	46,000	12,149

Barium, Binoxide of.

	Pounds.	Dollars.
1909	3,031,304	225,588
1910	3,563,528	261,674
1911	4,896,563	347,129
1912	3,715,823	255,053
1913	3,507,598	215,500

Barium, Carbonate.

	Pounds.	Dollars.
1912	946,971	7,376
1913	2,182,517	20,143

Barium, Chlorate of.

	Pounds.	Dollars.
1909	4,402,767	57,696
1910	3,705,502	38,672
1911	2,742,486	29,771
1912	2,854,080	27,766
1913	2,926,159	26,341

Bark, Cinchona or Other from Which Quinine May Be Extracted.

	Pounds.	Dollars.
1909	3,502,385	263,112
1910	3,305,894	255,763
1911	4,136,354	341,806
1912	2,935,350	239,182
1913	3,329,973	354,593

Bark, Hemlock.

	Cords.	Dollars.
1909	20,312	126,559
1910	16,346	95,667
1911	10,536	65,957
1912	5,633	34,427
1913	5,502	31,965

Baryta, Sulphate of, or Barytes Nonmanufactured.

	Tons.	Dollars
1909	13,378	47,505
1910	10,620	32,110
1911	18,394	45,062
1912	20,988	40,941
1913	28,358	63,345

Baryta, Sulphate of, or Barytes Manufactured.

	Tons.	Dollars.
1909	2,879	27,156
1910	2,690	27,191
1911	3,263	26,462
1912	2,689	21,642
1913	4,594	36,819

Bay Rum, or Bay Water.

	Proof gallons.	Dollars.
1909	292	280
1910	661	639
1911	675	656
1912	379	396
1913	685	707

Beeswax.

	Pounds.	Dollars.
1909	764,895	231,539
1910	970,909	284,407
1911	904,960	270,119
1912	1,077,117	328,752
1913	828,287	254,704

Bismuth.

	Pounds.	Dollars.
1909	176,775	274,666
1910	200,221	316,838
1911	178,297	321,360
1912	166,980	305,282
1913	151,030	257,176

Blanc Fixe, Satin White and Artificial Sulphate of Lime.

	Pounds.	Dollars.
1909	5,917,619	67,097
1910	5,656,507	66,923
1911	6,352,690	73,278
1912	6,702,262	79,925
1913	4,808,726	58,499

Blood, Dried.

		Dollars.
1909	.....	91,706
1910	.....	224,381
1911	.....	448,739
1912	.....	220,729
1913	.....	86,451

Blue, Berlin, Prussian, Chinese, Etc., in Pulp, Dry or Ground, in or Mixed with Oil or Water.

	Pounds.	Dollars.
1909	188,104	39,008
1910	206,539	37,360
1911	189,681	34,804
1912	137,960	24,606
1913	193,336	34,476

Bone Black, Lamp Black, Etc.

	Pounds.	Dollars.
1909	570,950	22,430
1910	1,295,258	25,394
1911	.....	26,064
1912	.....	22,544
1913	.....	31,056

Bone Char, Suitable for Use in Decolorizing Sugars.

		Dollars.
1912	.....	20,414
1913	.....	12,484

Bones, Crude.

		Dollars.
1909	.....	478,969
1910	.....	641,704
1911	.....	739,906
1912	.....	682,866
1913	.....	565,596

Bone-Dust, or Animal Carbon and Ash, Fit Only for Fertilizer.

	Tons.	Dollars.
1909	22,545	543,048
1910	37,750	882,407
1911	44,635	1,134,443
1912	36,534	913,023
1913	33,919	818,307

Borate of Lime, or Soda, or Other Borate Material.

	Pounds.	Dollars.
1909	1,646	167
1910	19,201	1,855
1911	13,095	2,277
1912	22,784	3,856
1913	16,267	1,988

Borax.

	Pounds.	Dollars.
1909	341,058	13,173
1910	9,058	1,479
1911	7,319	790
1912	6,409	604
1913	11,768	882

Bristles, Crude, Not Sorted.

	Pounds.	Dollars.
1909	10,394	7,656
1910	17,124	12,632
1911	11,562	9,803
1912	26,367	14,813
1913	18,913	13,306

Bristles, Sorted, Bunched, or Prepared.

	Pounds.	Dollars.
1909	2,809,130	2,469,490
1910	3,915,160	3,127,172
1911	3,409,878	2,879,295
1912	3,330,350	2,935,769
1913	3,479,666	3,319,904

Bronze Powder, Brocades, Flitters, and Metallics.

	Pounds.	Dollars.
1909	1,335,260	419,972
1910	1,856,011	557,550
1911	1,557,070	455,029
1912	1,454,154	416,685
1913	1,405,502	420,308

Brushes, Feather Dusters, and Hair Pencils.

		Dollars.
1909	.....	1,435,880
1910	.....	1,744,637
1911	.....	2,150,335
1912	.....	2,074,325
1913	.....	2,074,141

Buchu Leaves.

	Pounds.	Dollars.
1909	.....	45,559
1910	130,644	48,652
1911	106,345	81,658
1912	181,121	160,608
1913	105,310	114,632

Cadmium.

	Pounds.	Dollars.
1909	.....	4,643
1910	3,083	1,657
1911	5,956	3,718
1912	6,396	4,603
1913	1,999	1,508

Caffeine.

	Pounds.	Dollars.
1909	17,291	43,381
1910	60,463	100,491
1911	57,025	104,011
1912	43,859	139,067
1913	59,773	211,361

Calamine (See Zinc-Bearing Ores).

Calcium, Chloride of.

	Pounds.	Dollars.
1909	149,599	587
1910	528,947	2,073
1911	.....	.....
1912	.....	.....
1913	.....	.....

Calomel, Corrosive Sublimate and Other Mercurial Medicinal Preparations.

	Pounds.	Dollars.
1909	35,366	21,700
1910	48,324	32,319
1911	.....	33,896
1912	.....	35,842
1913	.....	42,728

Note.—Quantity not stated after 1910.

Camomile Flowers.

	Pounds.	Dollars.
1909	.....	7,528
1910	.....	19,615
1911	.....	19,110
1912	.....	17,227
1913	.....	14,176

Camphor, Crude, Natural.

	Pounds.	Dollars.
1909	1,990,499	602,530
1910	3,026,650	921,928
1911	3,726,319	1,118,586
1912	2,155,751	682,748
1913	3,477,760	979,355

Camphor, Refined.

	Pounds.	Dollars.
1909	430,564	151,990
1910	492,583	177,174
1911	492,111	165,296
1912	248,389	93,080
1913	463,410	153,020

Camwood.

	Tons.	Dollars.
1909	½	96
1910	.....	.....
1911	33	62
1912	1½	525
1913	½	191

Candle Tar or Pitch.

	Pounds.	Dollars.
1909	3,252,322	73,147
1910	3,398,952	55,102
1911	2,758,964	42,084
1912	2,780,736	49,332
1913	3,047,020	56,970

Candles and Tapers, Wax and Other.

	Pounds.	Dollars.
1909	.....	35,277
1910	.....	26,069
1911	.....	21,651
1912	.....	19,178
1913	.....	22,960

Cantharides.

	Pounds.	Dollars.
1909	4,624	2,372
1910	7,902	3,971
1911	12,317	6,684
1912	17,092	8,925
1913	8,788	5,582

Cassia Buds.

	Pounds.	Dollars.
1909	185,973	20,644
1910	117,764	11,196
1911	105,982	11,616
1912	26,667	3,418
1913	23,367	2,449

Cassia, and Cassia Vera.

	Pounds.	Dollars.
1909	6,817,484	558,783
1910	5,355,835	430,298
1911	6,446,787	522,228
1912	6,880,723	521,104
1913	7,151,605	547,116

Castor or Castoreum.

	Pounds.	Dollars.
1909	2,533	1,721
1910	6,296	3,150
1911	5,072	3,077
1912	6,332	4,750
1913	9,245	5,384

Castor Beans or Seeds.

	Pounds.	Dollars.
1909	613,799	679,980
1910	753,375	862,393
1911	790,241	1,005,850
1912	978,258	1,080,620
1913	824,574	918,608

Chalk, Unmanufactured.

	Tons.	Dollars.
1909	96,311	93,452
1910	116,115	103,847
1911	123,278	117,041
1912	151,868	128,190
1913	150,010	120,049

Chalk, When Ground, Precipitated, or Otherwise Prepared, Including Tailors', Billiard, Red or French.

	Pounds.	Dollars.
1909	1,363,005	32,225
1910	2,728,382	69,293
1911	3,826,118	92,423
1912	3,809,841	88,391
1913	2,536,622	79,731

China Clay, or Kaolin.

	Pounds.	Dollars.
1909	193,493	1,359,108
1910	231,234	1,563,790
1911	228,598	1,550,247
1912	217,366	1,541,105
1913	263,838	1,753,822

Chloral Hydrate.

	Pounds.	Dollars.
1909	6,096	1,156
1910	.....	.....
1911	7,024	8,396
1912	.....	.....
1913	.....	.....

Chloroform.

	Pounds.	Dollars.
1909	1,756	1,231
1910	965	1,487
1911	1,010	1,782
1912	926	1,541
1913	942	1,643

Chrome, Yellow or Green and All Other Chromium Colors.

	Pounds.	Dollars.
1909	170,973	23,107
1910	156,586	25,029
1911	156,733	25,516
1912	161,153	24,731
1913	148,299	23,405

Cinchonidia.

	Ounces.	Dollars.
1909	60,332	11,590
1910	229,243	46,886
1911	17,272	4,219
1912	136,197	14,183
1913	309,395	43,680

Cinchona Bark, Alkaloids or Salts of, All Other, Except Quinia, Sulphate of.

	Ounces.	Dollars.
1909	204,207	40,357
1910	337,481	32,646
1911	615,840	58,042
1912	520,201	91,802
1913	648,865	131,692

Cinnamon, and Chips of.

	Pounds.	Dollars.
1909	1,022,846	93,856
1910	921,042	87,798
1911	1,147,428	100,640
1912	1,013,348	109,215
1913	1,405,832	188,267

Civet, Crude.

	Ounces.	Dollars.
1909	2,684	2,717
1910	5,888	5,715
1911	27,086	7,850
1912	5,039	6,725
1913	11,299	15,557

Clay of Earths, Not Specially Provided for.

	Tons.	Dollars.
1909	27,653	176,639
1910	26,952	164,495
1911	233,893	105,177
1912	26,384	120,458
1913	37,379	167,614

Cliffstone, Unmanufactured.

	Tons.	Dollars.
1909	10,767	16,437
1910	8,618	12,260
1911	.....	.....
1912	8,522	11,167
1913	5,626	6,164

Cloves.

	Pounds.	Dollars.
1909	5,844,535	565,851
1910	3,232,801	290,167
1911	4,088,527	533,152
1912	6,414,363	713,230
1913	2,734,992	481,751

Clove Stems.

	Pounds.	Dollars.
1909	293,316	8,111
1910	8,417	425
1911	6,481	905
1912	.....	.....
1913	32,830	1,333

Coal Tar Colors or Dyes Not Specially Provided For.

		Dollars.
1909	.....	5,895,612
1910	.....	6,016,934
1911	.....	6,061,715
1912	.....	6,898,756
1913	.....	6,902,065

Coal Tar, Crude, and Pitch of.

	Barrels.	Dollars.
1909	27,791	56,753
1910	35,658	83,924
1911	20,927	43,744
1912	26,908	50,661
1913	14,096	23,691

Coal Tar Preparations Not Colors, Dyes or Medicines, Not Specially Provided For.

	Pounds.	Dollars.
1909	.....	690,572
1910	.....	651,560
1911	.....	652,652
1912	.....	625,666
1913	.....	686,003

Coal Tar Products, Not Medicinal (Chemicals).

		Dollars.
1909	.....	708,108
1910	.....	1,034,994
1911	.....	1,043,803
1912	.....	945,894
1913	.....	1,274,022

Cobalt, Oxide of.

	Pounds.	Dollars.
1909	6,361	8,549
1910	8,297	8,500
1911	14,561	7,576
1912	22,160	10,825
1913	28,729	14,405

Cocaine Ecgonine, and Salts of.

	Ounces.	Dollars.
1909	32,272	48,343
1910	175,739	83,883
1911	4,031	8,360
1912	2,004	3,499
1913	3,715	4,835

Cocculus Indicus.

	Pounds.	Dollars.
1909	.....	.....
1910	.....	.....
1911	3,382	118
1912	.....	.....
1913	.....	.....

Cochineal.

	Pounds.	Dollars.
1909	102,694	33,875
1910	150,811	41,445
1911	102,670	25,269
1912	177,799	55,682
1913	109,089	44,249

Cocoa Butter, or Butterine, Refined, Deodorized Cocoanut Oil, and All Substitutes for Cocoa Butter.

	Pounds.	Dollars.
1909	4,896,798	1,126,517
1910	3,755,140	750,333
1911	4,395,452	1,112,778
1912	5,832,963	1,552,973
1913	3,634,986	990,568

Coca Leaves.

	Pounds.	Dollars.
1909	1,100,649	126,881
1910	708,346	98,454
1911	1,226,771	234,162
1912	1,179,940	201,960
1913	1,175,780	139,035

Collodion and Compounds of Pyroxylin.

	Pounds.	Dollars.
1909	521	2,159
1910	3,956	2,929
1911	56,640	132,167
1912	86,169	187,772
1913	147,834	288,639

Note.—As the price per pound varies from 84 cents to $4.39, the quantities have no meaning.

Colombo Root.

	Pounds.	Dollars.
1909	3,022	101
1910	2,288	94
1911	8,436	610
1912	8,436	610
1913	27,565	794

Copperas, or Sulphate of Iron.

	Pounds.	Dollars.
1909	8,737	250
1910	69,466	3,472
1911	2,338	52
1912	633	12
1913	6,196	174

Copper, Sulphate of, or Blue Vitriol.

	Pounds.	Dollars.
1909	9,088	321
1910	3,481	169
1911	8,787	323
1912	12,112	652
1913	11,051	728

Corks.

	Pounds.	Dollars.
1909	1,217,989	917,650
1910	1,752,198	1,374,744
1911	2,585,284	2,178,919
1912	2,360,015	1,909,637
1913	2,511,285	2,187,867

Corkwood, or Cork Bark, Unm'fd.

	Pounds.	Dollars.
1909	78,330,391	2,016,534
1910	109,271,575	3,152,280
1911	139,602,251	4,286,760
1912	118,432,309	3,247,080
1913	133,227,878	3,152,070

Cottonseed Meal.

	Pounds.	Dollars.
1909	.....	4,669
1910	.....	.....
1911	.....	90
1912	1,743,113	13,706
1913	400,686	3,322

Cottonseed and Linseed (Bibby's).

	*Pounds.	Dollars.
1912	4,015,908	62,755
1913	2,571,694	37,455

*Not separately stated prior to 1912.

Cream of Tartar.

	Pounds.	Dollars.
1909	6,846	1,073
1910	116,278	9,902
1911	23,433	3,401
1912	92,980	16,209
1913	66,718	11,797

Cryolite, or Kryolith.

	Tons.	Dollars.
1909	1,135	17,500
1910	1,294	19,107
1911	66	4,120
1912	1,998	47,300
1913	2,519	52,440

Cubebs.

	Pounds.	Dollars.
1909	87,050	12,780
1910	104,713	26,340
1911	129,014	44,896
1912	111,358	52,169
1913	166,307	55,663

Cudbear.

	Pounds.	Dollars.
1909	34,865	2,104
1910	35,863	2,130
1911	25,880	1,859
1912	19,929	1,155
1913	27,971	1,755

Cutch.

	Pounds.	Dollars.
1909	1,368,114	55,060
1910	28,477	1,278
1911	.....	.....
1912	.....	.....
1913	.....	.....

Cuttlefish Bone.

	Pounds.	Dollars.
1909	230,746	24,822
1910	301,615	441,451
1911	277,489	40,860
1912	281,501	34,891
1913	218,317	30,355

Dandelion Root.

	Pounds.	Dollars.
1909	47,884	3,058
1910	35,919	2,436
1911	72,223	4,717
1912	97,942	7,372
1913	108,434	8,269

Divi Divi.

	Pounds.	Dollars.
1909	186,943	3,166
1910	654,404	13,130
1911	496,130	8,169
1912	221,659	2,807
1913	314,491	4,143

Dragon's Blood.

	Pounds.	Dollars.
1909	43,396	11,682
1910	26,555	9,034
1911	12,034	5,513
1912	34,411	9,292
1913	14,553	5,916

Dutch Metal Leaf, Bronze.

	100 leaves.	Dollars.
1909	734,728	74,456
1910	779,688	80,217
1911	808,219	84,357
1912	796,743	87,013
1913	763,671	104,329

Ergot.

	Pounds.	Dollars.
1909	135,740	26,651
1910	181,614	52,911
1911	141,334	75,592
1912	297,158	187,500
1913	223,793	208,364

Ether, Ethyl Chloride.

	Pounds.	Dollars.
1909	6,096	1,156
1910	.....	.....
1911	7,024	8,396
1912	8,372	5,187
1913	11,241	7,963

Ether Fruit.

	Pounds.	Dollars.
1909	627	749
1910	1,000	775
1911	68	140
1912	152	201
1913	81½	105

Ethers, Not Specially Provided For.

	Pounds.	Dollars.
1909	421	440
1910	190	223
1911	130	108
1912	239	127
1913	508	303

Ethers, Specific Duty Not Amounting to 25 Per Cent.

	*Pounds.	Dollars.
1909	.....	7,360
1910	.....	3,656
1911	.....	8,451
1912	1,369	5,589
1913	1,645	7,029

*Quantity not stated prior to 1912.

Ethers, Sulphuric.

	Pounds.	Dollars.
1909	1,234	222
1910	337	75
1911	1,475	289
1912	1,435	207
1913	755	120

Extracts of Bark for Dyeing or Tanning, Not Specially Provided For.

	Pounds.	Dollars.
1909	4,339,596	156,798
1910	2,522,885	84,018
1911	1,746,675	61,339
1912	2,439,966	91,056
1913	832,979	29,708

Fertilizer, Not Specially Provided For. (Used only for manure.)

	Tons.	Dollars.
1909	198,554	2,747,074
1910	196,902	3,129,814
1911	191,975	3,914,508
1912	169,283	3,327,646
1913	115,257	2,190,816

Formaldehyde.

	Pounds.	Dollars.
1909	34,143	9,842
1910	34,269	9,394
1911	.....	.....
1912	12,303	3,298
1913	.....	.....

Fuller's Earth.

	Tons.	Dollars.
1909	11,489	100,289
1910	13,192	118,956
1911	15,813	125,899
1912	16,175	138,111
1913	16,866	145,588

Fustic.

	Tons.	Dollars.
1909	2,466	34,752
1910	5,816	82,887
1911	5,379	72,673
1912	3,105	45,833
1913	3,785	53,303

Gambier, or Terra Japonica.

	Pounds.	Dollars.
1909	31,000,855	1,313,990
1910	25,808,720	1,264,023
1911	18,910,912	979,036
1912	20,886,462	1,029,456
1913	17,037,805	784,931

Gelatine.

	Pounds.	Dollars.
1909	1,151,380	385,141
1910	1,239,393	389,307
1911	1,327,976	237,678
1912	701,949	135,593
1913	1,085,940	279,892

Gentian Root.

	Pounds.	Dollars.
1909	1,485,380	62,445
1910	1,177,433	42,356
1911	1,537,919	56,902
1912	1,583,612	67,837
1913	1,795,928	88,281

Ginger Root, Not Preserved or Candied.

	Pounds.	Dollars.
1909	5,595,305	374,504
1910	5,383,371	411,236
1911	7,363,088	582,161
1912	3,994,564	368,193
1913	7,856,401	406,197

Glass, Window—Cylinder and Crown, Polished, Silvered When Ground, Bent or Decorated.

	Sq. feet.	Dollars.
1909	9	15
1910	250	105
1911	1,960	920
1912	216	167
1913	17	23

Glass, Plate—Rough.

	Sq. feet.	Dollars.
1909	284,669	13,576
1910	375,009	16,366
1911	335,843	13,170
1912	311,172	14,514
1913	379,219	14,812

Glass, Plate—Fluted, Rolled or Rough, Ground, Etc.

	Sq. feet.	Dollars.
1909	458,558	103,758
1910	382,205	81,884
1911	481,364	105,222
1912	170,599	39,904
1913	9,617	2,247

Glass, Plate—Cast, Polished, Finished or Unfinished and Unsilvered.

	Sq. feet.	Dollars.
1909	2,272,244	499,885
1910	3,150,176	702,039
1911	3,873,979	853,900
1912	1,110,743	276,452
1913	1,068,427	247,015

Glass, Plate—Cast, Polished, Unsilvered When Bent or Decorated, Etc.

	Sq. feet.	Dollars.
1909	14,514	7,966
1910	59,216	24,185
1911	83,955	39,350
1912	53,104	28,262
1913	88,189	47,449

Glass, Window—Cylinder, Crown, Unpolished.

	Pounds.	Dollars.
1909	22,754,650	692,803
1910	25,690,413	711,741
1911	29,698,511	825,381
1912	23,426,152	827,868
1913	20,458,971	804,732

Glass, Window—Cylinder, Crown and Common, Unpolished When Bent or Decorated.

	Pounds.	Dollars.
1909	993,568	79,368
1910	1,303,893	102,778
1911	1,380,770	114,171
1912	1,293,565	103,985
1913	1,773,025	153,723

Glass, Window—Cylinder, Crown, Polished.

	Sq. feet.	Dollars.
1909	516,293	115,058
1910	716,865	156,508
1911	646,141	140,301
1912	573,995	123,356
1913	579,129	119,395

Glass, Window—Cylinder and Crown, Polished, When Bent or Decorated.

	Sq. feet.	Dollars.
1909	315,554	83,429
1910	415,702	98,720
1911	362,879	87,713
1912	179,562	43,709
1913	247,428	60,269

Glass Cylinder and Crown—Polished, Silvered and L. G. Plates.

	Sq. feet.	Dollars.
1909	491	234
1910	939	270
1911	1,368	595
1912	1,320	369
1913	17	23

Glass, Plate—Cast, Polished, Silvered, When Bent or Otherwise Decorated.

	Sq. feet.	Dollars.
1909	7,486	2,553
1910	1,649	779
1911	6,488	2,486
1912	4,291	1,696
1913	1,510	1,004

Glass, Plate—Cast, Polished, Silvered and L. G. Plates, Exceeding in Size 144 Square Inches.

	Sq. feet.	Dollars.
1909	1,161	533
1910	6,374	1,946
1911	10,252	2,865
1912	1,380	403
1913	832	527

Glauber Salts.

	Tons.	Dollars.
1909	178	4,391
1910	338	6,484
1911	221	4,907
1912	240	4,810
1913	240	5,685

Glucose.

	Pounds.	Dollars.
1909	462,117	12,406
1910	146,729	4,226
1911	268,592	7,850
1912	239,383	8,345
1913	212,635	7,166

Glue.

	Pounds.	Dollars.
1909	6,415,265	647,528
1910	8,817,503	851,225
1911	8,089,745	786,615
1912	7,406,641	770,130
1913	5,099,661	672,266

Glue, Fish or Isinglass.

	Pounds.	Dollars.
1909	203,300	58,801
1910	333,792	76,643
1911	295,382	87,546
1912	235,367	81,145
1913	225,165	72,540

Glue, Size.

	Pounds.	Dollars.
1909	247,349	5,277
1910	131,325	4,315
1911	162,133	3,740
1912	80,649	2,712
1913	99,093	3,018

Glycerine, Crude.

	Pounds.	Dollars.
1909	35,494,897	2,930,482
1910	41,024,712	3,635,005
1911	40,192,804	4,339,299
1912	29,734,347	3,649,582
1913	34,399,129	4,247,032

Glycerine, Refined.

	Pounds.	Dollars.
1909	799,546	87,880
1910	237,756	37,559
1911	231,236	47,378
1912	185,893	36,221
1913	432,339	73,336

Gold Beaters' Molds and Skins.

		Dollars.
1909	.....	23,995
1910	.....	32,687
1911	.....	28,921
1912	.....	33,252
1913	.....	26,408

Gold Leaf.

	100 leaves.	Dollars.
1909	11,434	48,260
1910	9,030	39,902
1911	44,662	40,395
1912	38,611	34,859
1913	30,902	28,283

Grease Enfleurage.

	Pounds.	Dollars.
1909	91,562	368,469
1910	64,919	143,773
1911	128,656	292,821
1912	72,196	110,824
1913	92,446	124,195

Grease Stock, Sulphur Oil or Olive Foots.

	Pounds.	Dollars.
1913	13,698,352	874,114

Not separately stated prior to 1913.

Other Grease and Oils (Excepting Fish Oils), Used in Soap Making.

	Pounds.	Dollars.
1909	18,702,286	879,554
1910	19,428,569	1,063,607
1911	19,188,777	1,106,382
1912	27,578,286	1,301,862
1913	7,334,605	291,934

Includes sulphur oil, etc., prior to 1913.

Grease, Wool, Crude.

	Pounds.	Dollars.
1909	11,620,116	219,408
1910	13,396,097	230,538
1911	13,782,834	231,035
1912	10,789,726	210,997
1913	14,473,551	328,991

Grease, Wool, Refined.

	Pounds.	Dollars.
1910	2,873,088	94,825
1911	2,473,490	89,683
1912	2,289,189	85,285
1913	2,069,018	86,474

Not separately stated prior to 1910.

Grease and Oils, Other, Except Enfleurage.

		Dollars.
1909	.....	8,354
1910	.....	12,846
1911	.....	20,805
1912	.....	13,753
1913	.....	19,093

Guano.

	Tons.	Dollars.
1909	37,014	580,443
1910	46,819	819,879
1911	31,740	625,044
1912	34,856	685,140
1913	16,462	313,891

Gum, Aloes.

	Pounds.	Dollars.
1909	671,257	40,863
1910	944,007	57,638
1911	980,205	71,044
1912	666,229	52,753
1913	909,279	77,938

Gums, Amber and Amberoid, Crude.

	Pounds.	Dollars.
1909	57,904	313,517
1910	56,573	451,078
1911	54,606	436,692
1912	35,663	338,821
1913	35,646	339,984

Gum, Arabic.

	Pounds.	Dollars.
1909	4,153,958	275,087
1910	5,551,181	315,154
1911	5,765,582	432,564
1912	6,586,737	568,631
1913	7,111,354	593,126

Gum, Asafoetida.

	Pounds.	Dollars.
1909	42,335	6,145
1910	95,590	24,574
1911	114,653	20,802
1912	158,393	77,035
1913	191,572	85,868

Gum, Benzoin, Gamboge and Mastic.

	Pounds.	Dollars.
1909	69,146	26,025
1910	55,634	23,001
1911	98,366	35,758
1912	94,733	36,163
1913	105,967	41,981

Gum, Chicle.

	Pounds.	Dollars.
1909	4,411,942	1,724,883
1910	4,921,026	1,939,756
1911	5,368,566	2,551,344
1912	5,266,285	2,433,924
1913	6,929,416	3,059,116

Gum, Copal, Kauri and Damar.

	Pounds.	Dollars.
1909	24,876,383	2,288,453
1910	15,837,432	976,603
1911	23,103,928	2,087,937
1912	24,824,399	2,017,737
1913	31,513,330	2,828,840

Gum, Dextrine, Etc.

	Pounds.	Dollars.
1909	6,062,353	184,476
1910	3,691,762	202,103
1911	6,357,790	190,660
1912	5,352,277	188,332
1913	5,666,891	180,296

Gum, Rosin, Crude.

	Pounds.	Dollars.
1909	11,469,113	277,774
1910	9,063,994	238,090
1911	445,811	10,938
1912	27,560	3,865
1913	269,983	12,605

Gum, Scammony.

	Pounds.	Dollars.
1909	.....	.....
1910	.....	.....
1911	200	134
1912	.....	.....
1913	.....	.....

Gum, Senegal.

	Pounds.	Dollars.
1909	111,942	8,728
1910	168,526	9,887
1911	281,211	27,612
1912	144,947	20,533
1913	172,528	16,254

Gum, Tragacanth.

	Pounds.	Dollars.
1909	1,315,091	310,187
1910	1,340,559	392,562
1911	1,261,227	390,623
1912	1,502,261	428,849
1913	1,401,721	465,800

Gum, Tragasol.

	Pounds.	Dollars.
1909	998,278	20,163
1910	1,183,146	23,897
1911	1,056,157	21,628
1912	1,105,101	22,693
1913	1,028,804	23,998

Hop Extract and Lupulin.

		Dollars.
1909	.....	4,084
1910	.....	20,313
1911	.....	23,993
1912	.....	49,955
1913	.....	34,338

Hops.

	Pounds.	Dollars.
1909	7,383,907	1,335,300
1910	3,185,991	1,492,779
1911	8,541,524	2,700,761
1912	2,983,205	2,223,895
1913	8,471,776	2,843,299

Ichthyol.

	Pounds.	Dollars.
1909	74,217	113,494
1910	14,379	21,485
1911	39,745	59,504
1912	49,872	72,184
1913	44,347	61,796

Indigo, Crude, Natural and Artificial.

	Pounds.	Dollars.
1909	6,249,975	1,440,286
1910	7,456,690	1,195,942
1911	6,908,751	1,152,518
1912	7,697,482	1,160,473
1913	7,712,488	1,102,893

Indigo, Carmined.

	Pounds.	Dollars.
1909	23,772	15,385
1910	17,909	11,598
1911	12,575	8,144
1912	9,047	5,903
1913	16,329	9,986

Indigo, Extracts or Pastes.

	Pounds.	Dollars.
1909	148,454	17,897
1910	142,351	16,435
1911	105,493	14,785
1912	223,687	45,984
1913	242,998	43,417

Iodine, Crude.

	Pounds.	Dollars.
1909	12,910	25,705
1910	771,083	1,051,036
1911	210,440	418,762
1912	497,793	962,981
1913	351,256	739,734

Iodine, Resublimed.

	Pounds.	Dollars.
1909	51	110
1910	7	24
1911	27	76
1912	70	111
1913	40	96

Iodoform.

	Pounds.	Dollars.
1909	3	12
1910	31	100
1911	33	111
1912	17	49
1913	16	57

Ipecac.

	Pounds.	Dollars.
1909	35,166	27,945
1910	26,261	29,738
1911	27,654	36,522
1912	41,627	59,828
1913	54,648	86,113

Iridium.

	Ounces, Troy.	Dollars.
1909	384	121,940
1910	202	147,723
1911	3,282	161,137
1912	3,301	181,856
1913	5,341	348,333

Jalap.

	Pounds.	Dollars.
1909	66,096	15,096
1910	199,906	58,639
1911	230,679	61,415
1912	119,211	27,607
1913	227,275	44,632

Kainit, Kyanite and Kieserit.

	Tons.	Dollars.
1909	344,526	1,974,165
1910	484,155	2,313,150

*Stated separately after 1910.

Kainit.

	Tons.	Dollars.
1910	470,241	2,268,883
1911	586,474	2,677,105
1912	479,817	2,400,590
1913	466,184	2,149,089

Kieserite.

	Tons.	Dollars.
1910	5,179	10,484
1911	2,100	3,564
1912	7,545	17,089
1913	10,800	44,770

Kyanite or Cyanite.

	Tons.	Dollars.
1910	8,735	44,303
1911	400	1,994
1912	900	7,535
1913	612	7,949

Lac, Crude, Seed, Button and Stick.

	Pounds.	Dollars.
1909	397,774	68,100
1910	408,590	45,210
1911	420,323	46,036
1912	384,926	45,963
1913	293,010	36,832

Lac, Dye.

	Pounds.	Dollars.
1909	53,541	6,342
1910	.....	.....
1911	2,650	386
1912	57,234	4,594
1913	.....	.....

Lac, Spirit.

	Pounds.	Dollars.
1909	.....	.....
1910	.....	1
1911	.....	14,227
1912	.....	33,557
1913	.....	.....

Lactarene, or Casein.

	Pounds.	Dollars.
1909	2,447,432	184,815
1910	3,769,476	304,001
1911	15,011,018	1,105,466
1912	9,138,338	830,845
1913	8,803,639	651,062

Lard.

	Pounds.	Dollars.
1909	2,468	269
1910	3,812	447
1911	4,788	640
1912	4,427	585
1913	4,117	496

Lead, Acetate of—Brown, Gray or Yellow.

	Pounds.	Dollars.
1909	.....	.....
1910	15,184	766
1911	15,624	728
1912	4,331	251
1913	42	8

Lead, Acetate, White.

	Pounds.	Dollars.
1909	140	37
1910	9,437	536
1911	2,476	141
1912	36,165	1,880
1913	21,599	1,177

Lead, Nitrate.

	Pounds.	Dollars.
1909	208,365	9,051
1910	131,707	6,760
1911	166,325	8,623
1912	169,932	8,822
1913	11,305	605

Lead, Pig.

	Pounds.	Dollars.
1909	5,484,739	177,048
1910	8,378,314	269,245
1911	5,928,660	182,400
1912	5,772,563	176,318
1913	6,905,760	147,858

Lemon, Lime, and Sour Orange Juice.

		Dollars.
1909	.....	102,746
1910	.....	65,318
1911	.....	88,683
1912	.....	117,353
1913	.....	116,379

Licorice, Extract of, in Paste Rolls or Other Forms.

	Pounds.	Dollars.
1909	51,084	66,641
1910	813,602	106,237
1911	886,856	120,349
1912	961,428	119,717
1913	832,277	106,288

Licorice Root.

	Pounds.	Dollars.
1909	97,742,776	1,628,894
1910	82,209,935	1,395,576
1911	128,140,623	2,060,571
1912	74,680,270	1,309,819
1913	105,032,429	1,806,756

Lime.

	Pounds.	Dollars.
1909	13,451,775	56,400
1910	18,085,581	79,781
1911	10,771,700	57,203
1912	9,985,253	54,459
1913	77,319	42,839

Note:—Unit of quantity is "100 pounds" after 1912.

Lime, Chloride, or Bleaching Powder

	Pounds.	Dollars.
1909	83,376,080	684,427
1910	93,838,195	750,140
1911	99,478,325	802,015
1912	72,766,732	600,621
1913	76,092,327	619,492

Lime, Citrate.

	Pounds.	Dollars.
1909	3,917,274	489,631
1910	4,114,256	568,175
1911	5,219,544	712,004
1912	5,903,501	791,416
1913	5,526,954	756,309

Lime and Soda, Hypophosphites of.

	Pounds.	Dollars.
1909	162,920	3,648
1910	.....	.....
1911	.....	.....
1912	.....	.....
1913	.....	.....

Linseed or Flaxseed.

	Bushels.	Dollars.
1909	597,671	837,961
1910	5,002,842	8,533,533
1911	10,490,962	21,384,809
1912	6,850,112	13,016,184
1913	5,274,922	8,118,319

Litharge.

	Pounds.	Dollars.
1909	89,754	3,098
1910	91,529	4,204
1911	16,843	764
1912	28,079	1,344
1913	34,022	1,649

Logwood.

	Tons.	Dollars.
1909	17,873	166,371
1910	31,270	353,311
1911	35,340	424,123
1912	39,924	481,384
1913	36,952	475,484

Logwood and Other Dyewood Extracts.

	Pounds.	Dollars.
1909	3,463,582	231,612
1910	2,937,026	187,124
1911	3,509,904	197,289
1912	2,463,422	112,552
1913	2,258,206	111,575

Mace.

	Pounds.	Dollars.
1909	653,610	153,851
1910	510,499	123,357
1911	562,626	193,879
1912	403,355	168,086
1913	611,005	244,177

Madder, Ground or Prepared.

	Pounds.	Dollars.
1909	37,910	3,019
1910	30,709	2,312
1911	45,439	4,206
1912	41,957	2,834
1913	30,602	2,803

Magnesia, Calcined (Medicinal).

	Pounds.	Dollars.
1909	49,026	5,687
1910	57,417	9,269
1911	65,739	10,410
1912	112,611	17,080
1913	72,579	12,592

Magnesia, Carbonate of (Medicinal).

	Pounds.	Dollars.
1909	42,325	2,509
1910	56,196	3,744
1911	43,666	2,628
1912	51,891	2,923
1913	77,190	3,811

Magnesia, Sulphate of, or Epsom Salts.

	Pounds.	Dollars.
1909	8,053,235	26,138
1910	6,147,159	27,330
1911	6,204,219	23,092
1912	8,012,226	31,332
1913	9,345,099	35,739

Magnesite, Crude.

	Pounds.	Dollars.
1909	29,725,355	39,558
1910	34,175,514	108,623
1911	37,951,190	127,344
1912	29,415,095	88,482
1913	33,654,260	111,276

Magnesite, Calcined, Not Purified.

	Pounds.	Dollars.
1909	186,961,370	871,384
1910	225,895,904	1,026,982
1911	296,226,907	1,362,120
1912	204,997,478	990,241
1913	345,322,135	1,731,443

Magnesium, Note Made Up.

	Pounds.	Dollars.
1909	.....	17,845
1910	.....	399
1911	.....	.....
1912	.....	.....
1913	.....	.....

Manganese, Ore and Oxide of.

	Tons.	Dollars.
1909	165,000	1,243,657
1910	247,226	1,594,425
1911	209,566	1,453,177
1912	197,960	1,292,435
1913	407,169	2,195,565

Manna.

	Pounds.	Dollars.
1909	69,942	21,250
1910	47,658	17,360
1911	47,427	21,424
1912	96,307	49,335
1913	30,869	16,303

Menthol, or Peppermint Crystals.

	Pounds.	Dollars.
1909	25,975	36,963
1910	23,951	43,224
1911	50,533	122,977
1912	51,720	200,532
1913	49,896	289,058

Milk, Sugar Of.

	Pounds.	Dollars.
1909	195	58
1910	4,960	1,940
1911	4,732	1,848
1912	2,697	1,731
1913	9,026	2,582

Mineral Salts Obtained by Evaporation from Mineral Waters.

	Pounds.	Dollars.
1909	199,618	35,623
1910	78,630	29,624
1911	55,788	22,766
1912	94,106	38,595
1913	103,337	35,420

Morphia, or Morphine, Sulphate Of.

	Ounces.	Dollars.
1909	152	392
1910	13,082	60,137
1911	20,745	95,667
1912	13,825	78,891
1913	24,797	141,221

Musk, Crude (in Natural Pods).

	Ounces.	Dollars.
1909	5,464	38,271
1910	9,388	56,322
1911	8,823	71,739
1912	5,232	46,729
1913	12,994	124,855

Musk, in Grain.

		Dollars.
1910	.....	1,169
1909	.....	2,208
1911	.....	4,119
1912	.....	4,064
1913	.....	7,699

Mustard, Ground or Prepared.

	Pounds.	Dollars.
1909	1,743,218	445,432
1910	1,185,629	301,632
1911	1,278,840	22,574
1912	1,406,040	372,723
1913	1,433,118	383,710

Myrabolans.

	Pounds.	Dollars.
1909	42,667,676	441,584
1910	55,445,896	484,570
1911	23,595,695	184,513
1912	22,797,639	185,277
1913	10,735,724	195,264

Nutgalls.

		Dollars.
1909	.....	150,358
1910	.....	104,710
1911	.....	97,557
1912	.....	129,457
1913	.....	126,435

Nutgall, Extract, Aqueous.

	Pounds.	Dollars.
1910	82,728	7,860
1911	114,004	12,155
1912	148,725	16,145
1913	145,919	18,228

*Not separately stated prior to 1910.

Nutmegs.

	Pounds.	Dollars.
1909	2,644,791	219,329
1910	2,164,878	166,622
1911	2,392,251	210,409
1912	2,697,422	304,757
1913	3,458,339	368,984

Nux Vomica.

	Pounds.	Dollars.
1909	1,666,957	27,370
1910	2,738,662	35,170
1911	4,350,402	58,183
1912	2,427,187	37,782
1913	2,306,735	39,380

Ocher, Crude and Powdered, Washed or Pulverized.

	Pounds.	Dollars.
1909	11,437,490	91,050
1910	15,266,164	122,189
1911	13,295,207	118,759
1912	11,729,835	110,398
1913	17,383,272	162,387

Ocher, Ground in Oil or Water.

	Pounds.	Dollars.
1909	12,741	614
1910	14,413	769
1911	10,699	547
1912	16,346	901
1913	16,988	970

Oil, Alizarine, Assistant.

	Gallons.	Dollars.
1909	110,842	42,584
1910	97,097	38,600
1911	115,172	50,051
1912	108,331	49,809
1913	137,187	62,923

Oil Almond, Sweet.

	Pounds.	Dollars.
1909	118,704	41,483
1910	94,380	34,194
1911	107,223	38,692
1912	110,927	41,294
1913	152,300	63,583

Oil, Almond, Bitter.

	Pounds.	Dollars.
1909	22,233	16,642
1910	22,350	18,764
1911	14,143	19,308
1912	27,315	35,657
1913	10,442	25,629

Oil, Amber.

	Pounds.	Dollars.
1909	18,059	1,294
1910	9,001	1,098
1911	14,553	845
1912	15,493	1,293
1913	18,707	1,027

Oil, Aniline.

	Pounds.	Dollars.
1909	1,950,620	204,758
1910	1,946,805	199,105
1911	1,917,202	186,332
1912	1,843,443	175,120
1913	2,015,318	171,047

Oil, Anise, or Anise Seed.

	Pounds.	Dollars.
1909	99,262	84,595
1910	48,231	42,943
1911	82,127	80,132
1912	77,454	86,207
1913	127,501	173,078

Oil, Bergamot.

	Pounds.	Dollars.
1909	89,958	281,211
1910	438,155	133,490
1911	65,199	222,225
1912	67,526	315,227
1913	64,259	310,835

Oil, Cajeput.

	Pounds.	Dollars.
1909	12,687	1,681
1910	27,664	8,157
1911	22,663	8,049
1912	17,996	3,776
1913	9,143	3,224

Oil Cake.

	Pounds.	Dollars.
1909	1,716,505	18,219
1910	5,185,380	59,644
1911	12,407,460	129,332
1912	16,611,928	204,708
1913	10,662,040	140,995

Oil, Camomile.

	Pounds.	Dollars.
1909	12	138
1910	68	343
1911	32	400
1912	31	394
1913	4½	88

Oil, Camphor.

	Pounds.	Dollars.
1909	124,354	16,818
1910	114,710	13,874
1911	4,088	555
1912	.....	.....
1913	.....	.....

Oil, Caraway.

	Pounds.	Dollars.
1909	16,204	19,290
1910	60,097	42,560
1911	43,487	30,794
1912	30,373	21,412
1913	10,107	10,453

Oil, Cassia and Cinnamon.

	Pounds.	Dollars.
1909	133,194	119,343
1910	108,183	82,051
1911	80,224	56,673
1912	142,182	101,056
1913	123,645	97,438

Oil, Castor.

	Gallons.	Dollars.
1909	6,847	5,829
1910	7,417	1,050
1911	7,065	7,007
1912	6,971	6,721
1913	5,241	6,396

Oil, Cedrat.

	Pounds.	Dollars.
1909	297	950
1910	210	612
1911	129	955
1912	424	1,329
1913	115	555

Oil, Citronella or Lemongrass.

	Pounds.	Dollars.
1909	1,038,838	261,748
1910	907,016	213,568
1911	831,723	190,982
1912	1,104,968	281,577
1913	885,486	287,549

Oil, Cocoanut, Not Refined or Deodorized.

	Pounds.	Dollars.
1909	52,302,999	3,085,970
1910	48,034,004	3,341,921
1911	51,121,085	4,144,454
1912	46,021,118	3,828,845
1913	50,493,858	4,182,654

Oil, Cod.

	Gallons.	Dollars.
1910	658,400	167,803
1911	596,847	182,238
1912	463,962	172,842
1913	466,494	135,969

Oil, Codliver.

	Gallons.	Dollars.
1909	209,155	105,474
1910	273,585	136,404
1911	230,844	201,394
1912	241,755	200,658
1913	262,516	137,872

Oil, Cottonseed.

	Gallons.	Dollars.
1909	9,300	3,686
1910	15,988,054	809,004
1911	17,686,375	1,147,683
1912	1,958,831	100,517
1913	3,383,906	185,396

Oil, Creosote.

	Gallons.	Dollars
1909	39,060,490	2,220,809
1910	36,719,782	2,168,240
1911	45,499,838	2,384,501
1912	50,319,736	2,284,845
1913	63,997,602	3,711,328

Oil, Croton.

	Pounds.	Dollars.
1909	150	84
1910	2,412	1,081
1911	3,156	1,878
1912	1,619	1,399
1913	4,873	4,414

Oil, Fennel.

	Pounds.	Dollars.
1909	16,533	3,516
1910	9,896	2,609
1911	7,169	2,542
1912	6,895	2,946
1913	5,702	4,160

Oil, Fish (Not Specially Provided For), Including Sod Oil.

	Gallons.	Dollars.
1909	827,012	203,474
1910	546,820	147,159
1911	875,066	276,460
1912	607,027	179,963
1913	519,121	152,803

Oil, Fusel or Amylic Alcohol.

	Gallons.	Dollars.
1909	3,560,261	441,982
1910	4,970,538	599,909
1911	5,176,344	839,469
1912	5,468,554	1,464,031
1913	5,116,660	1,183,872

Oil, Hempseed.

(In 1909 included with Rapeseed Oil. Not separately stated after 1911.)

	Gallons.	Dollars.
1910	471,002	154,866
1911	20,439	7,524
1912	.....	.....
1913	.....	.....

Oil, Jasmine.

	Pounds.	Dollars
1909	2,339	36,865
1910	2,899	31,739
1911	1,851	30,706
1912	2,074	29,020
1913	3,416	39,554

Oil, Juniper.

	Pounds.	Dollars.
1909	21,647	13,521
1910	16,563	9,628
1911	21,457	10,110
1912	20,808	10,620
1913	17,356	13,037

Oil, Lavender, and Aspic or Spike Lavender.

	Pounds.	Dollars.
1909	255,134	315,041
1910	161,373	148,971
1911	26,683	180,232
1912	162,920	268,347
1913	227,013	482,779

Oil, Lemon.

	Pounds.	Dollars.
1909	405,695	358,197
1910	415,819	310,543
1911	430,768	325,552
1912	400,424	491,696
1913	410,093	794,215

Oil, Limes.

	Pounds.	Dollars.
1909	21,995	9,973
1910	8,025	9,137
1911	9,122	9,466
1912	12,821	9,165
1913	13,075	15,025

Oil, Linseed or Flaxseed, Raw, Boiled or Oxidized.

	Gallons.	Dollars.
1909	28,102	13,249
1910	467,664	258,390
1911	3,959,475	2,711,560
1912	809,307	538,816
1913	172,522	110,840

Oil, Mace.

	Pounds.	Dollars.
1909	2,200	983
1910	7,799	3,063
1911	2,385	1,033
1912	1,944	902
1913	5,737	2,611

Oil, Neroli, or Orange Flower.

	Tons.	Dollars.
1909	23,185	170,342
1910	20,053	70,433
1911	16,207	49,306
1912	17,437	71,054
1913	38,365	171,932

Oil, Chinese, Nut.

	Gallons.	Dollars.
1909	2,897,319	1,151,016
1910	2,494,896	846,635
1911	5,840,739	2,204,016
1912	4,816,252	2,373,163
1913	6,004,045	2,738,000

Oil, Olive (for Manufacturing Purposes).

	Gallons.	Dollars.
1909	695,223	306,674
1910	1,063,477	629,666
1911	717,494	486,788
1912	702,565	438,542
1913	725,100	483,329

Oil, Olive—Edible.

	Gallons.	Dollars.
1909	3,728,386	4,677,514
1910	3,597,953	4,817,413
1911	4,193,543	5,799,715
1912	4,760,889	6,065,690
1913	4,772,775	6,227,526

Oil, Origanum, Red or White.

	Pounds.	Dollars.
1909	2,637	741
1910	1,822	641
1911	849	273
1912	718	645
1913	8,922	8,502

Oil, Orange.

	Pounds.	Dollars.
1909	87,591	151,869
1910	46,814	65,488
1911	73,186	99,303
1912	97,065	168,831
1913	77,797	155,299

Oil, Palm.

	Pounds.	Dollars.
1909	58,971,777	3,185,038
1910	92,630,668	5,584,862
1911	57,251,758	4,066,362
1912	46,907,934	3,000,681
1913	48,412,662	3,368,815

Oil, Paraffine.

	Gallons.	Dollars.
1909	1,040,441	84,602
1910	134,892	40,014
1911	162,380	53,133
1912	142,076	34,120
1913	116,192	35,193

Oil, Peppermint.

	Pounds.	Dollars.
1909	1,239	6,416
1910	1,099	5,697
1911	2,127	12,126
1912	1,839	11,411
1913	3,529	13,097

Oil, Poppy Seed, Raw, Boiled or Oxidized.

	Gallons.	Dollars.
1909	6,598	4,840
1910	7,565	5,234
1911	18,686	14,071
1912	8,462	6,508
1913	9,605	7,788

Oil, Rapeseed.

In 1909 included with Hempseed Oil.

	Gallons.	Dollars.
1910	963,216	417,746
1911	1,355,182	597,599
1912	1,185,067	588,495
1913	1,564,659	784,750

Oil, Rendered and Combinations, Not Specially Provided For.

	Gallons.	Dollars.
1909	19,835	4,333
1910	6,390	1,593
1911	1,524	495
1912	1,574	955
1913	4,050	2,023

Oil, Roses, Attar Of.

	Ounces.	Dollars.
1909	102,416	454,808
1910	57,991	222,431
1911	87,949	395,975
1912	109,055	580,785
1913	133,325	791,370

Oil, Rosemary, or Anthross.

	Pounds.	Dollars.
1909	85,421	41,792
1910	51,832	22,917
1911	94,098	42,049
1912	153,592	62,369
1913	284,144	109,930

Oil, Seal.

	Gallons.	Dollars.
1909	11,469	8,144
1910	55,077	19,787
1911	230,726	87,410
1912	1,153	575
1913	8,972	3,131

Oil, Sesame, or Sessamum.

	Pounds.	Dollars.
1909	1,274,032	103,658
1910	1,310,186	94,933
1911	1,478,897	119,543
1912	1,380,637	109,173
1913	1,936,647	158,442

Oil, Soya Bean.

	Pounds.	Dollars.
1910	.....	1,091,842
1911	41,105,920	2,555,707
1912	28,019,560	1,578,968
1913	12,440,406	635,882

Oil, Thyme.

	Pounds.	Dollars.
1909	50,117	37,272
1910	46,325	32,592
1911	42,317	35,956
1912	66,039	47,802
1913	138,972	105,296

Oil, Valerian.

	Pounds.	Dollars.
1909	18	83
1910	52	353
1911	35	120
1912	18	55
1913	40	124

Oil, Whale.

	Gallons.	Dollars.
1909	27,948	9,954
1910	567,716	222,879
1911	1,284,150	445,331
1912	893,192	254,430
1913	1,166,339	278,208

Opium, Aqueous Extract of, and Tinctures of, as Laudanum.

		Dollars.
1909	.....	407
1910	.....	342
1911	.....	3,693
1912	.....	.....
1913	.....	671

Opium, Crude.

	Pounds.	Dollars.
1909	465,781	1,831,689
1910	412,444	1,453,172
1911	502,407	1,644,301
1912	384,912	2,020,026
1913	441,277	2,130,154

Opium Salts and Other Alkaloids Not Specially Provided For.

	Ounces.	Dollars.
1909	3,782	10,115
1910	21,870	63,406
1911	480	2,545
1912	654	1,742
1913	9,672	28,587

Opium, Smoking, and Containing Less than 9 Per cent. of Morphia.

	Pounds.	Dollars.
1909	*118,509	1,072,591
1910	.....	.....
1911	.....	.....
1912	.....	.....
1913	.....	.....

*After April 1, 1909, the importation of opium for smoking was prohibited.

Opium, Dried, Powdered, or Otherwise Advanced.

	Pounds.	Dollars.
1910	27,934	128,900
1911	67,992	304,200
1912	77,551	641,887
1913	49,071	389,894

Orange Mineral.

	Pounds.	Dollars.
1909	514,129	27,896
1910	541,373	29,591
1911	923,254	36,577
1912	443,802	25,998
1913	287,535	18,595

Orchil, or Orchil Liquid.

		Dollars.
1909	.....	45,819
1910	.....	38,769
1911	.....	42,559
1912	.....	34,053
1913	.....	27,386

Orris Root.

	Pounds.	Dollars.
1909	529,054	27,229
1910	636,589	44,947
1911	555,698	42,223
1912	583,303	44,395
1913	357,963	37,326

Oxide of Iron and Spanish, Indian Red, and Colcothar.

		Dollars.
1909	.....	51,029
1910	.....	66,816
1911	.....	82,514
1912	.....	99,106
1913	.....	103,604

Palladium.

	Pounds.*	Dollars.
1909	6 2/100	2,377
1910	56	14,622
1911	843	37,588
1912	2,254	96,525
1913	9,577	401,707

* Quantity stated is "ounces, troy," after 1910.

Paraffine.

(Not including oil.)

	Pounds.	Dollars.
1909	4,043,127	227,498
1910	6,424,331	309,424
1911	9,518,547	436,875
1912	8,055,216	351,415
1913	11,521,205	503,802

Paris Green and London Purple.

	Pounds.	Dollars.
1909	211,856	22,550
1910	192,647	15,392
1911	22,193	2,361
1912	183,089	4,783
1913	165,820	7,692

Pepper, Black and White, Unground.

	Pounds.	Dollars.
1909	37,094,824	2,115,413
1910	15,423,284	1,103,701
1911	23,193,416	1,697,027
1912	26,450,845	2,617,440
1913	27,568,317	2,855,184

Pepper, Cayenne, Capsicum or Red Pepper.

	Pounds.	Dollars.
1909	4,711,947	386,980
1910	4,319,764	393,039
1911	5,242,284	557,759
1912	6,422,773	597,632
1913	4,022,755	412,823

Perfumery, Alcoholic, Toilet Waters, Etc.

	Pounds.	Dollars.
1909	244,230	694,280
1910	208,783	582,531
1911	245,532	709,632
1912	271,838	738,549
1913	286,025	819,685

Perfumery, Cosmetics and Toilet Preparations Not Containing Alcohol, Not Specially Provided For.

		Dollars.
1909	.....	707,610
1910	.....	595,716
1911	.....	798,586
1912	.....	872,478
1913	.....	1,026,369

Petroleum, Crude.

	Gallons.	Dollars.
1909	8,232	1,421
1910	3,563,971	98,624
1911	10,755,888	233,774
1912	146,788,173	2,549,651
1913	459,542,222	7,608,796

Petroleum, Refined, Benzine.

	Gallons.	Dollars.
1909	6,148,241	328,636
1910	10,531,785	548,889
1911	10,755,888	233,774
1912	15,978,776	985,768
1913	14,162,423	1,266,896

Phosphorus.

	Pounds.	Dollars.
1909	34,606	15,116
1910	33,074	14,423
1911	40,076	17,783
1912	11,632	5,674
1913	650	270

Phosphate, Crude.

	Tons.	Dollars.
1909	17,398	128,629
1910	17,668	204,341
1911	18,980	203,326
1912	20,685	179,605
1913	23,478	184,204

Pimento.

	Pounds.	Dollars.
1909	10,077,241	339,870
1910	4,350,489	157,627
1911	5,659,208	156,542
1912	3,444,665	137,246
1913	7,212,109	259,508

Pitch, Burgundy.

	Pounds.	Dollars.
1909	814,369	25,809
1910	1,364,166	35,210
1911	1,077,360	41,763
1912	833,393	36,795
1913	977,629	43,790

Pitch, Marine Glue.

	Pounds.	Dollars
1909	83,041	7,193
1910	156,236	11,044
1911	207,276	10,743
1912	261,624	11,910
1913	303,186	14,392

Plaster Rock, or Gypsum, Crude.

	Tons.	Dollars.
1909	288,741	341,309
1910	340,339	407,906
1911	342,528	408,151
1912	363,657	426,524
1913	386,927	462,889

Plasters, Curative, and Court Plaster

		Dollars.
1909	.....	8,279
1910	.....	5,412
1911	.....	3,964
1912	.....	4,589
1913	.....	4,639

Plumbago or Graphite.

	Tons.	Dollars.
1909	15,986	1,463,717
1910	21,597	1,894,266
1911	20,152	1,677,993
1912	18,590	1,423,386
1913	25,233	1,972,177

Potash, Bicarbonate of.

	Pounds.	Dollars.
1909	342,856	16,915
1910	334,300	16,633
1911	325,016	16,428
1912	275,204	13,155
1913	311,645	14,295

Potash Bichromate and Chromate of.

	Pounds.	Dollars.
1909	171,542	12,330
1910	877,151	43,037
1911	22,880	1,999
1912	24,094	2,273
1913	27,671	2,601

Potash, Carbonate of, Crude.

	Pounds.	Dollars.
1909	9,628,966	324,540
1910	8,407,373	263,643
1911	10,680,341	327,400
1912	6,747,150	211,602
1913	10,063,912	295,066

Potash, Carbonate of, Refined.

	Pounds.	Dollars.
1909	11,000,479	379,392
1910	9,036,267	303,917
1911	11,143,144	396,728
1912	11,627,209	383,958
1913	14,035,111	412,587

Potash, Caustic or Hydrate of, Unrefined.

	Pounds.	Dollars.
1909	7,041,657	294,709
1910	8,785,491	358,855
1911	7,426,402	309,965
1912	8,422,007	330,684
1913	8,994,449	348,501

Potash, Caustic or Hydrate of, Refined.

	Pounds.	Dollars.
1909	127,611	9,289
1910	141,480	11,095
1911	82,854	9,254
1912	77,184	8,007
1913	112,822	11,920

Potash, Chlorate of.

	Pounds.	Dollars.
1909	20,801	1,635
1910	413,885	26,608
1911	25,069	2,096
1912	42,131	3,444
1913	1,235,732	66,609

Potash, Cyanide of.

	Pounds.	Dollars.
1909	2,752,983	386,354
1910	2,422,667	328,146
1911	2,325,289	326,972
1912	2,095,541	312,777
1913	950,890	137,535

Potash, Hydriodate Iodide and Iodate of.

	Pounds.	Dollars.
1909	251	508
1910	142	275
1911	272	519
1912	238	451
1913	120	239

Potash, Muriate of.

	Pounds.	Dollars.
1909	297,337,838	4,758,907
1910	391,854,497	5,640,541
1911	428,565,280	6,449,575
1912	484,060,059	7,235,729
1913	447,673,220	6,737,757

Potash, Red, Prussiate of.

	Pounds.	Dollars.
1909	77,255	13,522
1910	65,777	12,460
1911	55,082	10,230
1912	71,612	11,264
1913	65,316	11,302

Potash, Yellow, Prussiate of.

	Pounds.	Dollars.
1909	1,754,377	178,740
1910	2,230,871	229,907
1911	1,777,313	180,584
1912	2,072,761	203,295
1913	2,812,408	309,302

Potash, Sulphate of.

	Pounds.	Dollars.
1909	61,016,263	1,148,607
1910	84,970,450	1,399,915
1911	106,269,944	1,952,370
1912	101,162,179	1,853,235
1913	96,045,242	1,798,369

Pumice, Unmanufactrued.

	Tons.	Dollars
1909	5,734	77,210
1910	8,850	105,473
1911	5,783	58,755
1912	5,943	55,019
1913	5,558	44,474

Pumice Stone, Wholly or Partly Manufactured.

	Pounds.	Dollars.
1909	.....	.....
1910	4,934,254	36,838
1911	7,838,607	38,985
1912	6,280,480	29,240
1913	3,845,326	17,417

Not separately stated prior to 1910.

Putty, Whiting and Paris White, Ground in Oil.

	Pounds.	Dollars.
1909	76	7
1910	17,995	220
1911	77,581	1,151
1912	29,047	886
1913	36,434	881

Quebracho Extract.

	Pounds.	Dollars.
1909	99,168,284	2,685,021
1910	90,483,576	2,857,618
1911	77,666,700	3,213,344
1912	74,239,715	2,442,893
1913	63,604,814	1,672,314

Quebracho Wood.

	Tons.	Dollars.
1909	66,083	731,795
1910	80,210	1,068,647
1911	64,706	952,726
1912	68,174	982,316
1913	101,899	1,360,126

Quicksilver.

	Pounds.	Dollars.
1909	30,857	16,601
1910	677	366
1911	361,332	191,108
1912	193,411	100,270
1913	380	387

Quinin, Sulphate of.

	Ounces.	Dollars.
1909	2,085,765	285,125
1910	2,345,472	318,376
1911	2,469,082	347,241
1912	2,368,840	361,111
1913	2,279,734	397,409

Red Lead.

	Pounds.	Dollars.
1909	862,226	33,568
1910	822,617	33,460
1911	1,035,254	40,225
1912	1,106,692	47,484
1913	145,478	7,223

Rennets.

		Dollars.
1909	.....	97,691
1910	.....	92,459
1911	.....	110,142
1912	.....	102,142
1913	.....	129,588

Rhubarb.

	Pounds.	Dollars.
1909	63,715	7,608
1910	107,341	16,147
1911	125,816	13,050
1912	140,838	15,756
1913	121,701	16,554

Rosin, Violin.

		Dollars.
1909	.....	22,458
1910	.....	28,546
1911	.....	53,611
1912	.....	34,147
1913	.....	30,621

Rotten Stone and Tripoli.

		Dollars.
1909	.....	22,458
1910	.....	28,546
1911	.....	53,611
1912	.....	34,147
1913	.....	30,621

Sago, Crude, and Soap Flour.

		Dollars.
1909	.....	67,648
1910	.....	80,760
1911	.....	88,214
1912	.....	91,203
1913	.....	93,146

Saffron, Extract of, and Saffron Cake.

	Pounds.	Dollars.
1909	16,796,780	231,170
1910	7,515,712	127,883
1911	11,765,106	196,504
1912	8,842,299	169,170
1913	12,389,192	230,992

Salicin.

	Pounds.	Dollars.
1909	3,324	12,091
1910	5,437	19,441
1911	3,282	11,802
1912	3,855	13,500
1913	3,274	12,146

Salt.

	100 pounds.	Dollars.
1909	2,917,564	437,892
1910	2,767,525	374,420
1911	2,824,556	390,043
1912	2,901,815	379,540
1913	2,508,561	356,911

Salt Cake.

	Tons.	Dollars.
1909	18	737
1910	3,928	40,640
1911	11,398	121,218
1912	659	8,394
1913	189	4,771

Saltpeter, Crude.

	Pounds.	Dollars.
1909	17,470,648	512,473
1910	25,144,975	675,765
1911	9,288,557	282,835
1912	6,172,441	213,258
1913	10,989,382	288,995

Saltpeter, Refined.

	Pounds.	Dollars.
1909	415,281	14,421
1910	2,610,941	115,457
1911	851,681	38,384
1912	442,862	23,896
1913	393,605	22,142

Santonin and All Salts of, Containing 80 Per Cent. or Over of Santonin.

	Pounds.	Dollars.
1909	7,257	15,549
1910	7,391	52,778
1911	4,291	39,678
1912	3,090	39,956
1913	1,982	44,358

Sarsaparilla Root.

	Pounds.	Dollars.
1909	570,124	52,937
1910	560,858	59,786
1911	379,091	43,849
1912	452,917	51,428
1913	301,308	38,360

Seed, Anise.

	Pounds.	Dollars.
1909	784,891	52,205
1910	938,957	44,537
1911	1,144,845	66,131
1912	958,725	66,180
1913	1,290,831	84,941

Seed, Canary.

	Bushels.	Dollars.
1909	79,614	58,924
1910	*6,768,334	132,058
1911	*6,552,722	138,585
1912	*4,704,625	106,276
1913	6,219,623	184,596

* Pounds.

Seed, Cardamom.

	Pounds.	Dollars.
1909	104,981	45,612
1910	126,267	51,740
1911	94,598	45,788
1912	81,964	47,403
1913	113,461	104,287

Seed, Caraway.

	Pounds.	Dollars.
1909	2,508,905	297,457
1910	2,951,702	179,770
1911	2,856,098	150,997
1912	3,616,481	176,182
1913	3,691,831	234,294

Seed, Coriander.

	Pounds.	Dollars.
1909	1,146,734	30,502
1910	1,386,064	32,065
1911	1,069,069	35,826
1912	2,095,423	67,822
1913	1,324,735	35,817

Seed, Cotton.

	Pounds.	Dollars.
1909	1,266,968	8,118
1910	922,751	5,300
1911	1,365,415	13,358
1912	2,944,144	22,124
1913	3,264,114	56,315

Seed, Cummin and Fenugreek.*

	Pounds.	Dollars.
1909	1,548,342	68,440
1913	.....	.....

* Separately stated after 1909.

Seed, Cummin.

(Included with fenugreek heretofore.)

	Pounds.	Dollars.
1910	651,057	42,116
1911	615,608	42,291
1912	616,343	39,305
1913	529,667	27,178

Seed, Fenugreek and Fennel.*

	Pounds.	Dollars.
1910	1,265,565	27,432
1911	1,643,651	40,798
1913	.....	.....

* Separately stated after 1911.

Seed, Fennel.

	Pounds.	Dollars.
1909	113,623	6,972
1910	*	.....
1912	480,978	18,547
1913	187,665	14,410

* Included with fenugreek.

Seed, Fenugreek.

	Pounds.	Dollars.
1912	1,594,224	28,620
1913	1,944,407	37,434

Seed, Mustard.

	Pounds.	Dollars.
1909	8,872,575	333,615
1910	9,124,305	372,443
1911	8,512,475	298,145
1912	12,198,171	419,328
1913	12,719,682	417,370

Seed, Poppy.

	Bushels.	Dollars.
1909	52,086	118,020
1910	44,203	101,291
1911	57,783	140,616
1912	44,717	164,804
1913	77,396	237,069

Seed, Rape.

	Pounds.	Dollars.
1909	3,320,651	115,054
1910	3,288,620	102,036
1911	3,039,349	96,768
1912	6,727,169	233,543
1913	4,308,750	169,634

Senna in Leaves.

	Pounds.	Dollars.
1909	2,159,553	99,856
1910	2,564,352	129,229
1911	3,063,275	143,846
1912	3,164,093	154,012
1913	2,634,117	150,555

Sheep Dip.

		Dollars.
1909	.....	2,575
1910	.....	20,440
1911	.....	18,582
1912	.....	22,907
1913	.....	63,527

Shellac.

	Pounds.	Dollars.
1909	19,189,251	3,891,157
1910	29,889,319	3,920,752
1911	15,917,906	2,352,313
1912	18,775,232	2,302,888
1913	22,069,610	3,046,750

Sienna, Ground in Oil or Water.

	Pounds.	Dollars.
1909	10,043	630
1910	7,780	534
1911	9,853	643
1912	751	87
1913	7,421	502

Silver Leaf.

	Packs of 100 leaves.	Dollars.
1909	140	86
1910	1,783	946
1911	28,240	3,220
1912	24,747	3,116
1913	17,130	2,122

Soap, Castile.

	Pounds.	Dollars.
1909	5,082,214	374,472
1910	5,129,734	395,426
1911	4,573,057	364,200
1912	5,034,504	388,460
1913	4,656,365	357,888

Soap, Perfumed, Toilet.

	Pounds.	Dollars.
1909	1,294,035	559,486
1910	596,486	248,196
1911	.....	380,471
1912	.....	324,625
1913	.....	324,207

Soap, All Other.

		Dollars.
1909	.....	57,034
1910	.....	118,043
1911	.....	68,806
1912	.....	73,687
1913	.....	58,526

Soda Ash.

	Pounds.	Dollars.
1909	4,440,499	48,674
1910	4,900,027	55,262
1911	3,878,172	43,365
1912	2,905,587	33,459
1913	3,100,790	35,461

Soda, Arseniate of.

	Pounds.	Dollars.
1909	250,719	7,108
1910	484,722	14,368
1911	168,442	5,199
1912	356,491	11,195
1913	1,207,998	55,941

Soda, Bicarbonate of, Etc.

	Pounds.	Dollars.
1909	121,762	4,821
1910	146,459	4,472
1911	85,202	2,634
1912	110,015	3,193
1913	80,999	2,238

Soda, Bichromate and Chromate of.

	Pounds.	Dollars.
1909	2,412,032	97,661
1910	2,664,317	101,687
1911	11	1
1912	.....	.....
1913	9	3

Soda, Hydrate of, or Caustic.

	Pounds	Dollars.
1909	781,971	24,742
1910	1,038,803	33,882
1911	2,984,280	73,968
1912	930,616	28,937
1913	671,480	25,364

Soda, Chlorate of.

	Pounds.	Dollars.
1909	150	12
1910	.....	.....
1911	55	2
1912	140	22
1913	60	10

Soda, Crystal Carbonate of.

	Pounds.	Dollars.
1909	168,363	3,464
1910	139,808	2,569
1911	305,144	4,235
1912	354,609	5,016
1913	169,174	2,928

Soda, Hyposulphite of.

	Pounds.	Dollars.
1909	11,456	312
1910	44,759	626
1911	29,537	612
1912	8,535	277
1913	7,299	228

Soda, Nitrate of

	Tons.	Dollars.
1909	353,558	12,583,417
1910	542,334	16,548,036
1911	546,394	17,101,155
1912	481,786	15,427,904
1913	586,315	20,713,375

Soda, Nitrite of.

	Pounds.	Dollars.
1909	152,393	7,258
1910	1,132,776	52,237
1911	477,707	21,205
1912	974,667	47,390
1913	1,269,544	57,595

Soda, Phosphate of.

	Pounds.	Dollars.
1909	49,153	707
1910	62,193	1,045
1911	43,868	750
1912	.....	.....
1913	30	14

Soda, Yellow Prussiate of.

	Pounds.	Dollars.
1909	1,962,068	123,880
1910	1,299,840	76,684
1911	1,196,601	66,971
1812	1,646,344	90,654
1913	1,887,369	118,475

Soda, Sal, or Soda Crystals, Not Concentrated.

	Pounds.	Dollars.
1909	500,136	3,231
1910	482,249	4,630
1911	214,419	11,713
1912	253,634	2,020
1913	128,027	1,010

Soda, Silicate of, or Other Alkaline Silicate.

	Pounds.	Dollars.
1909	1,018,243	8,578
1910	1,190,163	12,904
1911	1,234,721	11,713
1912	933,236	8,870
1913	1,032,113	9,400

Soda, Sulphide of.

	Pounds.	Dollars.
1909	533,679	7,764
1910	596,056	9,086
1911	456,054	6,279
1912	722,980	10,456
1913	951,664	13,068

Soda, Sulphite of.

	Pounds.	Dollars.
1909	470,847	10,150
1910	251,074	4,082
1911	987,403	14,810
1912	354,232	4,860
1913	27,152	400

Sponges and Manufactures of.

		Dollars.
1909	.....	243,056
1910	.....	314,971
1911	.....	256,479
1912	.....	311,547
1913	.....	289,909

Starch.

	Pounds.	Dollars.
1909	16,903,029	385,203
1910	.....	290,893
1911	8,401,899	274,290
1912	15,131,654	458,359
1913	15,179,711	429,703

Stearin, Oleo.

	Pounds.	Dollars.
1909	4,104,098	419,359
1910	8,922,978	930,160
1911	5,708,402	591,072
1912	4,912,710	448,950
1913	9,540,347	967,060

Strontia, Oxide of.

		Dollars.
1909	.....	6
1910	.....	287
1911	.....	44
1912	.....	.....
1913	.....	474

Strichnia or Strychnine and All Salts of.

	Ounces.	Dollars.
1909	1,475	714
1910	1,971	1,075
1911	145	144
1912	305	262
1913	532	377

Sulphur or Brimstone, Crude.

	Tons.	Dollars.
1909	17,897	307,207
1910	31,233	537,778
1911	23,380	409,990
1912	25,545	483,754
1913	19,258	374,024

Sulphur, Refined.

	Tons.	Dollars.
1909	751	10,966
1910	966	24,078
1911	999	24,072
1912	1,393	35,448
1913	1,742	41,626

Sulphur Lac or Precipitated.

	Pounds.	Dollars.
1909	114,699	7,442
1910	110,886	6,672
1911	130,633	8,008
1912	150,952	9,670
1913	715,876	13,723

Sulphur Ore as Pyrites or Sulphuret of Iron Containing Not in Excess of 25 Per Cent. Sulphur.

	Tons.	Dollars.
1909	661,712	2,462 54
1910	723,277	2,617,725
1911	893,487	3,108,060
1912	1,004,049	3,990,145
1913	966,576	4,112,057

Sulphur, Sublimed or Flowers of.

	Tons.	Dollars.
1909	426	13,035
1910	1,165	33,870
1911	969	27,296
1912	3,921	87,067
1913	6,104	122,693

Sumac, Extract.

	Pounds.	Dollars.
1909	1,232,830	54,171
1910	1,461,373	54,990
1911	987,348	36,025
1912	1,389,733	46,557
1913	1,270,825	44,548

Sumac, Ground.

	Pounds.	Dollars.
1909	10,976,485	291,562
1910	12,605,164	280,404
1911	11,571,708	215,298
1912	12,642,129	258,887
1913	14,112,112	280,256

Sumac, Unmanufactured.

	Pounds.	Dollars.
1919	558,109	20,617
1910	1,003,553	24,929
1911	678,008	13,587
1912	576,869	9,461
1913	621,366	12,420

Talc, Ground, Etc.

	Pounds.	Dollars.
1909	14,767,760	84,761
1910	18,477,655	116,886
1911	12,653,335	82,727
1912	20,465,942	117,094
1913	23,660,095	122,623

Tallow.

	Pounds.	Dollars.
1909	364,964	28,300
1910	922,478	68,482
1911	984,383	81,640
1912	349,381	25,703
1913	490,505	41,710

Tapioca, Tapioca Flour, Cassava or Cassady.

	Pounds.	Dollars.
1909	56,363,629	1,164,201
1910	41,628,674	857,221
1911	60,915,112	1,396,198
1912	52,435,311	1,490,897
1913	71,356,085	1,955,109

Tar and Pitch of Wood.

	Barrels.	Dollars.
1909	897	4,789
1910	1,504	8,068
1911	1,759	10,448
1912	677	6,227
1913	178	2,777

Tartrate of Soda or Potassa, or Rochelle Salts.

	Pounds.	Dollars.
1909	40,123	4,913
1910	37,876	4,328
1911	78,257	9,035
1912	86,447	11,270
1913	138,115	16,927

Terra Alba.

	Pounds.	Dollars.
1909	.....	.....
1910	.....	.....
1911	11,200	61
1912	.....	.....
1913	.....	.....

Thorium, Nitrate of.

	Pounds.	Dollars.
1909	133,752	270,917
1910	98,813	150,499
1911	118,201	237,212
1912	118,171	230,395
1913	112,105	212,263

Tin, Oxide of (Black).

	Pounds.	Dollars.
1909	.....	.....
1910	112,114	13,091
1911	76,558	8,920
1912	122,603	35,760
1913	82,983	18,536

Tonka Beans.

	Pounds.	Dollars.
1909	442,576	216,887
1910	294,008	175,008
1911	23,218	27,616
1912	91,024	201,131
1913	783,888	1,140,409

Turmeric.

		Dollars.
1909	.....	31,336
1910	.....	28,077
1911	.....	41,609
1912	.....	32,342
1913	.....	33,735

Turpentine, Spirits of.

	Gallons.	Dollars.
1909	50,767	17,538
1910	127,202	54,330
1911	204,821	108,278
1912	61,910	24,780
1913	56,457	19,295

Turpentine, Venice.

	Pounds.	Dollars.
1909	61,342	6,345
1910	111,565	15,904
1911	112,053	20,702
1912	83,362	9,816
1913	60,678	9,169

Ultramarine, Dry, in Pulp or Mixed with Water.

	Pounds.	Dollars.
1909	731,489	63,074
1910	709,726	66,209
1911	685,933	63,817
1912	745,091	66,435
1913	694,938	62,259

Umber, Crude, Not Powdered, Washed or Pulverized.

	Pounds.	Dollars.
1909	1,966,474	12,716
1910	3,235,771	19,420
1911	2,557,313	13,265
1912	2,962,166	15,377
1913	5,256,077	29,391

Umber, Powdered, Washed or Pulverized.

	Pounds.	Dollars.
1909	708,587	10,194
1910	845,793	12,271
1911	492,331	6,372
1912	762,772	11,283
1913	817,500	11,217

Umber, Ground in Oil or Water.

	Pounds.	Dollars.
1909	10,734	566
1910	7,687	426
1911	6,789	444
1912	5,463	399
1913	6,083	380

Uranium, Oxide and Salts of.

		Dollars.
1909	.....	9,628
1910	.....	8,402
1911	.....	12,651
1912	.....	15,024
1913	.....	21,435

Vaccine Virus.

		Dollars.
1909	.....	35,110
1910	.....	5,813
1911	.....	11,398
1912	.....	7,525
1913	.....	5,032

Valonia.

	Pounds.	Dollars.
1909	.....	22,019
1910	.....	122,319
1911	.....	207,098
1912	*1,196,591	24,680
1913	5,295,762	79,610

*Quantity not stated prior to 1912

Vanilla Beans.

	Pounds.	Dollars.
1909	1,121,575	1,495,469
1910	796,589	1,203,773
1911	1,140,640	1,953,328
1912	841,639	2,025,133
1913	1,049,617	2,641,574

Vanillin.

	Ounces.	Dollars.
1909	361	80
1910	4,080	948
1911	140	34
1912	.....	.....
1913	889	171

Varnish Spirit.

	Gallons.	Dollars.
1909	3,044	5,177
1910	10,261	12,603
1911	7,319	9,691
1912	5,272	16,827
1913	1,475	4,078

Varnish, Other—Including Gold Size or Japan.

	Gallons.	Dollars.
1909	25,484	51,133
1910	27,680	53,520
1911	28,641	52,284
1912	24,312	48,853
1913	25,693	51,710

Venetian Red.

	Pounds.	Dollars.
1909	4,030,846	28,566
1910	2,913,586	26,314
1911	2,350,303	25,242
1912	2,228,593	18,438
1913	2,989,104	23,649

Verdigris, or Sub-Acetate of Copper.

	Pounds.	Dollars.
1909	63,709	8,509
1910	172,052	10,604
1911	86,010	6,008
1912	211,339	4,973
1913	55,465	7,053

Vermilion Reds.

	Pounds.	Dollars.
1909	81,292	41,500
1910	70,606	35,796
1911	96,141	53,040
1912	72,076	38,838
1913	85,337	44,753

Wash Blue Containing Ultramarine.

	Pounds.	Dollars.
1909	77,015	10,886
1910	112,945	14,732
1911	129,800	13,786
1912	112,234	14,260
1913	97,220	13,332

Wax, Mineral.

	Pounds.	Dollars.
1909	4,829,898	485,301
1910	8,157,226	585,994
1911	5,809,416	481,744
1912	5,508,862	440,925
1913	6,440,878	507,656

Wax, Vegetable.

	Pounds.	Dollars.
1909	4,088,100	624,352
1910	5,269,576	823,293
1911	4,188,179	836,021
1912	4,564,928	1,080,198
1913	5,542,474	1,152,738

White Lead.

	Pounds.	Dollars.
1909	667,417	37,493
1910	728,431	40,804
1911	659,915	38,878
1912	715,370	46,920
1913	678,078	46,527

Whalebone, Unmanufactured.

	Pounds.	Dollars.
1909	14,295	64,653
1910	10,000	26,472
1911	.....	91,435
1912	18,251	44,587
1913	8,993	12,686

Whiting and Paris White, Dry.

	Pounds.	Dollars.
1909	2,089,981	13,540
1910	2,868,239	16,305
1911	4,656,958	18,758
1912	3,729,155	14,578
1913	3,536,747	14,032

Witherite.

	Pounds.	Dollars.
1909	2,856,464	26,790
1910	3,090,986	28,749
1911	4,254,068	33,790
1912	2,205,896	16,476
1913	2,109,842	15,224

Zinc Bearing Ores, Including Calamine.

	Tons gross weight.	*Copper contents, bundles.	Dollars.
1909	48,763	.....	580,626
1910	22,334	37,977,197	320,926
1911	29,542	22,407,108	391,872
1912	6,244	3,769,255	79,464
1913	27,481	25,214,528	526,173

* Not separately stated prior to 1910.

Zinc, Chloride of.

	Pounds.	Dollars.
1909	1,348,678	35,302
1910	1,201,440	31,644
1911	1,311,185	34,978
1912	1,182,441	33,133
1913	1,252,319	37,078

Zinc, Oxide, Dry.

	Pounds.	Dollars.
1909	5,602,259	311,588
1910	6,626,902	379,445
1911	5,262,777	331,357
1912	4,842,948	310,362
1913	6,148,120	389,485

Zinc Sulphate.

	Pounds.	Dollars.
1909	38,406	1,129
1910	55,921	1,709
1911	45,423	2,042
1912	76,890	2,983
1913	23,778	817

Chalk, Crayons, Etc.

		Dollars.
1909	.....	99,093
1910	.....	110,647
1911	.....	122,490
1912	.....	56,414
1913	.....	49,478

Chewing Gum.

		Dollars.
1909	.....	42,806
1910	.....	53,483
1911	.....	89,129
1912	.....	164,311
1913	.....	186,944

Coal Tar.

	Barrels.	Dollars.
1909	99,093	136,721
1910	110,523	138,834
1911	90,829	121,375
1912	22,676	59,390
1913	121,168	152,273

Cork, Manufactures of.

		Dollars.
1909	.....	150,308
1910	.....	157,046
1911	.....	168,267
1912	.....	294,046
1913	.....	339,436

Copper, Sulphate of.

	Pounds.	Dollars.
1909	3,063,504	132,920
1910	4,431,425	188,464
1911*	6,218,042	269,684
1912	6,401,928	287,481
1913	6,051,080	262,561

* Figures for 1911 are for six months only, January to June, inclusive.

Dyes and Dyestuffs.

		Dollars.
1909	.....	380,884
1910	.....	389,205
1911	.....	325,519
1912	.....	314,694
1913	.....	347,656

Egg Yolks, Canned Eggs, Etc.

		Dollars.
1909	.....	23,938
1910	.....	3,585
1911	.....	5,353
1912	.....	29,541
1913	.....	67,854

Fertilizers, Phosphate Rock, Ground or Unground, Not Acidulated.

NOT SEPARATELY STATED PRIOR TO 1913

	Tons.	Dollars.
High grade hard rock	494,200	4,942,000
Land pebble	777,508	4,577,962
All other	794	4,127
	Tons.	Dollars.
1909	1,067,935	8,105,784
1910	981,695	7,454,694
1911	1,308,340	9,068,839
1912	1,212,967	8,982,934
1913	.....	.....

Fertilizers, All Other.

	Tons.	Dollars.
1909	37,432	1,177,632
1910	39,492	1,245,946
1911	54,251	1,652,293
1912	63,593	1,890,794
1913	74,834	1,875,999

Ginseng.

	Pounds.	Dollars.
1909	186,257	1,270,179
1910	192,406	1,439,454
1911	155,599	1,688,202
1912	155,308	1,119,391
1913	221,901	1,665,731

Glass Bottles, Vials, Demijohns, Carboys and Jars.

(Not separately stated prior to 1913.)

	Dollars.
1913	808,327

Glass, Plate.

(Not classified previous to 1908.)

	Square feet.	Dollars.
1909	47,228	17,834
1910	37,790	15,016
1911*	88,596	29,683
1912	222,206	50,754
1913	165,120	58,830

* Figures for 1911 are for six months only, January to June, inclusive.

Glass, Cylinder, Crown and Common Window.

		Dollars.
1909	.....	39,427
1910	.....	67,995
1911*	.....	121,359
1912	.....	114,109
1913	.....	434,361

* Figures for 1911 are for six months only, January to June, inclusive.

Glass, All Other.

		Dollars.
1909	.....	2,095,932
1910	.....	2,732,390
1911	.....	3,095,369
1912	.....	3,329,290
1913	.....	2,892,124

Glucose.

(Not separately classified previous to 1908.)

	Pounds.	Dollars.
1909	92,652,409	1,938,406
1910	112,730,639	2,623,131
1911	137,461,782	2,596,220
1912	126,396,045	2,911,736
1913	158,365,604	3,682,371

Glue.

	Pounds.	Dollars.
1909	2,340,426	244,751
1910	2,488,205	261,756
1911	2,307,966	242,795
1912	3,059,952	314,909
1913	2,544,932	276,619

Graphite and Manufactures of.

		Dollars.
1909	.....	293,716
1910	.....	302,568
1911	.....	407,423
1912	.....	452,896
1913	.....	497,282

Grease and Soap Stock.

(Stated separately after 1911.)

		Dollars.
1909	.....	4,814,901
1910	.....	4,612,426
1911	.....	5,177,581

Grease, Lubricating.

(Not separately stated prior to 1912.)

		Dollars.
1912	.....	2,193,363
1913	.....	2,339,015

Grease, Soap Stock and Other.

(Not separately stated prior to 1912.)

		Dollars.
1912	.....	4,486,329
1913	.....	4,844,342

Honey.

		Dollars.
1909	.....	85,578
1910	.....	159,401
1911	.....	81,640
1912	.....	212,652
1913	.....	182,252

Hops.

	Pounds.	Dollars.
1909	10,446,884	1,271,629
1910	10,589,254	2,062,140
1911	13,104,774	2,130,972
1912	12,190,663	4,648,505
1913	17,591,195	4,764,713

Iron, Pig.

	Tons.	Dollars.
1909	50,178	816,532
1910	79,771	1,353,589
1911	152,807	2,475,096
1912	185,985	2,658,428
1913	287,022	4,141,210

Lard.

	Pounds.	Dollars.
1909	328,722,033	52,712,569
1910	362,927,671	43,301,156
1911	476,107,857	52,509,217
1912	532,255,865	52,090,441
1913	497,925,484	55,860,102

Lard Compounds and Other Substitutes for Lard.

	Pounds.	Dollars.
1909	75,183,196	6,115,307
1910	74,556,003	6,887,738
1911	73,754,409	7,070,967
1912	62,522,888	5,183,689
1913	93,165,469	8,242,903

Lime, Acetate.

	Pounds.	Dollars.
1909	66,552,063	1,006,401
1910	63,687,429	1,423,337
1911	70,191,256	1,606,979
1912	69,235,415	1,502,785
1913	80,597,838	2,321,,427

Medicines, Patent or Proprietary.

		Dollars.
1909	.....	5,833,883
1910	.....	5,848,449
1911	.....	6,783,020
1912	.....	7,541,350
1913	.....	7,110,493

Mucilage.

		Dollars.
1909	.....	24,650
1910	.....	22,037
1911	.....	24,127
1912	.....	29,739
1913	.....	26,238

Oils, Animal, Not Otherwise Specified.

	Gallons.	Dollars.
1909	614,383	343,858
1910	535,875	409,460
1911	1,019,478	681,096
1912	1,019,412	754,342
1913	1,003,325	970,717

Oil Cake, Corn.

	Pounds.	Dollars.
1909	53,233,890	727,355
1910	49,108,598	689,633
1911	83,384,870	1,115,986
1912	72,490,021	1,053,291
1913	76,262,845	1,131,330

Oil Cake, Cottonseed.

	Pounds.	Dollars.
1909	1,233,750,327	15,805,433
1910	640,088,766	9,071,815
1911	804,596,935	10,153,475
1912	1,265,690,138	17,325,858
1913	1,128,092,367	15,223,798

Oil Cake, Flaxseed or Linseed.

	Pounds.	Dollars.
1909	682,764,545	9,303,346
1910	652,316,916	9,489,564
1911	559,674,653	8,361,666
1912	596,114,536	9,735,022
1913	838,119,654	12,982,423

Oil, Corn.

	Gallons.	Dollars.
1909	1,258,880	1,260,580
1910	*11,290,332	643,392
1911	*26,316,790	1,573,695
1912	*23,896,146	1,526,931
1913	*19,739,622	1,202,009

* Pounds.

Oil, Cottonseed.

	Gallons.	Dollars.
1909	51,087,320	20,851,380
1910	*223,955,002	14,798,067
1911	*225,520,944	17,127,360
1912	*399,470,973	24,089,225
1913	*315,232,892	20,736,972

* Pounds.

Oil, Fish (Except Whale.)

	Gallons.	Dollars.
1909	327,115	78,121
1910	1,529,696	370,309
1911	*42,058	17,040
1912	1,198,835	361,138
1913	1,901,953	501,227

* Figures for 1911 are for six months only, January to June, inclusive.

Oil, Illuminating.

	Gallons.	Dollars.
1909	1,080,542,456	71,329,901
1910	1,065,607,336	62,477,327
1911	1,022,311,042	57,476,484
1912	1,044,049,848	59,845,823
1913	1,048,894,297	66,189,265

Oil, Lard.

	Gallons.	Dollars.
1909	234,626	467,644
1910	151,142	131,241
1911	*120,004	95,724
1912	207,337	147,766
1913	154,983	113,665

* Figures for 1911 are for six months only, January to June, inclusive.

Oil, Linseed.

	Gallons.	Dollars.
1909	273,029	140,876
1910	228,426	135,858
1911	175,216	104,879
1912	246,965	208,591
1913	1,733,925	874,461

Oil, Lubricating and Heavy Paraffine.

	Gallons.	Dollars.
1909	144,254,271	18,307,342
1910	170,430,277	20,891,473
1911	173,642,495	22,061,100
1912	202,125,197	25,970,271
1913	213,671,499	29,574,410

Domestic Exports from the United States

[Statistics cover returns for the fiscal year ending June.]

Acid, Sulphuric.

	Pounds.	Dollars.
1909	6,732,584	80,327
1910	5,081,038	61,899
1911	5,777,442	69,537
1912	7,002,444	71,877
1913	9,790,532	89,783

Acids, All Other.

		Dollars.
1909	.....	302,237
1910	.....	404,480
1911	.....	319,900
1912	.....	364,297
1913	.....	364,347

Alcohol, Wood.

	Proof gallons.	Dollars.
1909	1,160,405	383,788
1910	1,328,601	581,820
1911	1,962,336	881,991
1912	1,565,368	685,565
1913	1,837,173	788,143

Alcohol—All Other, Including Pure, Neutral or Cologne Spirit.

	Proof gallons.	Dollars.
1909	108,932	36,719
1910	231,077	64,393
1911	35,231	19,820
1912	25,440	11,336
1913	151,232	58,346

Ashes, Pot and Pearl.

	Pounds.	Dollars.
1909	699,443	38,365
1910	.....	.....
1911	.....	.....
1912	.....	.....
1913	.....	.....

Asphaltum and Manufactures of.

		Dollars.
1909	.....	425,429
1910	.....	702,520
1911	.....	868,552
1912	.....	1,170,882
1913	.....	1,640,027

Bark, Extract of, for Tanning.

		Dollars.
1909	.....	260,995
1910	.....	388,448
1911	.....	336,600
1912	.....	404,024
1913	.....	524,063

Beeswax.

	Pounds.	Dollars.
1909	77,547	23,203
1910	89,890	27,740
1911	101,735	31,404
1912	100,478	32,556
1913	116,296	33,131

Baking Powder.

	Pounds.	Dollars.
1909	1,815,268	600,957
1910	1,754,914	529,062
1911	2,187,727	631,690
1912	2,615,138	750,748
1913	2,844,575	844,826

Bristles.

		Dollars.
1909	.....	6,543
1910	.....	.....
1911	.....	.....
1912	.....	.....
1913	.....	.....

Candles.

	Pounds.	Dollars.
1909	3,694,319	353,098
1910	3,215,882	294,578
1911	3,194,492	291,417
1912	2,782,439	255,075
1913	2,595,912	246,274

Lamp Black.

		Dollars.
1909	.....	514,951
1910	.....	679,607
1911	.....	640,911
1912	.....	907,623
1913	.....	506,748

Oils, Mineral—Naphtha (Including All Light Products of Distillation.)
(Stated separately after 1912.)

	Gallons.	Dollars.
1909	63,831,267	5,805,482
1910	77,650,923	6,302,418
1911	111,998,260	9,479,394
1912	171,040,150	15,437,736

Gasoline.
(Not separately stated prior to 1913.)

	Gallons.	Dollars.
1913	81,698,917	10,831,490

All Other.
(Not separately stated prior to 1913.)

	Gallons.	Dollars.
1913	101,821,572	14,269,878

Oil, Peppermint.

	Pounds.	Dollars.
1909	161,811	288,318
1910	110,407	215,845
1911	123,420	269,934
1912	155,740	422,631
1913	144,663	395,551

Oils, Vegetable, All Other Fixed or Expressed.

		Dollars.
1909	.....	249,360
1910	.....	343,509
1911	.....	292,757
1912	.....	339,391
1913	.....	420,368

Oils, Volatile, All Other.

		Dollars.
1909	.....	274,536
1910	.....	322,634
1911	.....	377,588
1912	.....	322,164
1913	.....	325,040

Oleomargarine, Imitation Butter.

	Pounds.	Dollars.
1909	2,889,175	293,635
1910	3,418,632	349,972
1911	3,794,939	408,459
1912	3,627,425	372,567
1913	2,987,582	311,485

**Oleo, Oil.*

	Pounds.	Dollars.
1909	179,985,246	19,126,741
1910	126,091,675	14,305,080
1911	138,696,906	13,658,762
1912	126,467,124	13,434,018
1913	92,849,757	10,866,253

* Includes "neutral lard" prior to 1911.

Paints Not Elsewhere Specified.

		Dollars.
1909	.....	2,512,460
1910	.....	3,090,498
1911	.....	3,604,384
1912	.....	3,864,307
1913	.....	1,802,049

Soap, All Other.

	Pounds.	Dollars.
1909	53,150,427	2,341,708
1910	45,716,414	2,140,676
1911	47,581,259	2,305,010
1912	67,855,457	2,636,991
1913	51,292,564	2,496,904

Spermaceti.

	Pounds.	Dollars.
1909	67,605	16,684
1910	51,539	13,866
1911	37,002	9,700
1912	35,470	8,256
1913	216,629	44,744

Spices.

		Dollars.
1909	.....	34,444
1910	.....	52,755
1911	.....	58,989
1912	.....	74,023
1913	.....	92,962

Spirits of Turpentine.

	Gallons.	Dollars.
1909	17,502,028	7,018,058
1910	15,587,737	8,780,236
1911	14,817,751	10,768,202
1912	19,590,241	10,069,135
1913	21,039,597	8,794,656

Sponges.

	Pounds.	Dollars.
1909	248,893	196,427
1910	260,654	225,138
1911	217,313	209,311
1912	154,287	146,416
1913	206,804	177,059

Paraffin and Paraffin Wax.

	Pounds.	Dollars.
1909	137,403,569	6,445,917
1910	196,982,550	7,886,359
1911	218,592,330	7,378,776
1912	249,502,899	8,123,486
1913	290,678,861	9,679,273

Perfumeries, Cosmetics and All Toilet Preparations.

		Dollars.
1909	.....	683,253
1910	.....	824,460
1911	.....	1,009,359
1912	.....	1,147,630
1913	.....	1,441,982

Platinum and Manufactures of.

		Dollars.
1909	.....	14,168
1910	.....	43,373
1911	.....	105,298
1912	.....	178,894
1913	.....	183,084

Quicksilver.

	Pounds.	Dollars.
1909	286,518	153,566
1910	467,434	256,084
1911	34,005	20,010
1912	24,231	14,817
1913	40,410	21,885

Residuum, Including Tar and All Other from Which Light Bodies Have Been Distilled.
(Separately stated after 1912.)

	Gallons.	Dollars.
1909	163,188,033	3,649,387
1910	124,055,263	4,141,613
1911	123,398,188	3,680,925
1912	168,339,478	4,386,903

Gas and Fuel Oil.
(Not separately stated prior to 1913.)

	Gallons.	Dollars.
1913	320,529,925	8,305,715

All Other.
(Not separately stated prior to 1913.)

	Gallons.	Dollars.
1913	27,513,503	496,237

Roots, Herbs, Etc., Not Elsewhere Specified.

		Dollars.
1909	.....	395,801
1910	.....	476,837
1911	.....	563,862
1912	.....	549,877
1913	.....	424,312

Rosin.

	Gallons.	Dollars.
1909	2,170,177	8,004,838
1910	2,144,518	9,753,488
1911	2,189,607	14,067,335
1912	2,474,460	16,462,850
1913	2,806,046	17,359,145

Salt.

	Pounds.	Dollars.
1909	66,474,294	237,973
1910	83,816,808	286,303
1911	102,032,616	329,255
1912	111,008,966	383,662
1913	128,035,915	441,673

Seed, Cotton.

	Pounds.	Dollars.
1909	51,626,741	632,561
1910	24,931,099	406,120
1911	13,224,347	209,944
1912	64,060,276	727,100
1913	24,048,947	328,988

Seed, Flax.

	Bushels.	Dollars.
1909	822,899	1,092,539
1910	65,193	118,329
1911	976	2,520
1912	4,323	12,100
1913	16,894	26,699

Soap, Toilet or Fancy.

		Dollars.
1909	.....	1,130,723
1910	.....	1,479,870
1911	.....	1,741,971
1912	.....	1,840,037
1913	.....	2,132,663

Starch.

	Pounds.	Dollars.
1909	33,228,278	780,166
1910	51,535,570	1,274,773
1911	158,239,178	3,137,552
1912	83,644,749	1,965,401
1913	110,897,591	2,609,716

Sugar, Grape.

	Pounds.	Dollars.
1909	19,572,095	407,683
1910	37,089,449	792,089
1911	44,501,264	799,163
1912	44,761,214	1,005,161
1913	41,783,642	970,025

Sulphur or Brimstone, Crude.

	Tons.	Dollars.
1909	31,525	630,527
1910	45,596	864,808
1911	17,269	326,735
1912	41,269	784,349
1913	73,861	1,353,310

Tallow. (This Is Beef Tallow.)

	Pounds.	Dollars.
1909	53,332,767	3,000,366
1910	29,379,992	1,779,615
1911	29,813,154	1,993,681
1912	39,451,419	2,388,046
1913	30,686,300	1,910,439

Tripoli.
(Not separately stated after 1912.)

		Dollars.
1909	.....	35,730
1910	.....	53,145
1911	.....	49,358
1912	.....	47,333

Tar, Turpentine and Pitch.

	Barrels.	Dollars.
1909	21,106	78,251
1910	40,037	148,238
1911	40,380	187,183
1912	50,107	223,002
1913	62,346	317,491

Varnish.

	Gallons.	Dollars.
1909	838,007	821,027
1910	1,017,284	976,238
1911	1,074,286	1,056,290
1912	1,114,413	1,118,004
1913	1,279,777	1,267,860

Whalebone.

	Pounds.	Dollars.
1909	67,331	233,692
1910	89,768	296,572
1911	82,557	251,386
1912	49,074	121,609
1913	106,174	182,938

Zinc Dross.

	Pounds.	Dollars.
1909	15,560,277	600,518
1910	9,182,593	347,747
1911	8,674,999	348,955
1912	3,866,317	168,381
1913	102,569	3,271

Zinc Ore.

	Tons.	Dollars.
1909	15,707	598,625
1910	15,022	533,750
1911	15,211	600,853
1912	19,968	787,013
1913	17,308	3,271

Zinc, Oxide of.

	Pounds.	Dollars.
1909	26,935,997	931,669
1910	27,149,378	956,460
1911	27,866,979	999,161
1912	32,792,882	1,182,683
1913	31,045,147	.....

Soya Bean Uses in China.

(Special to Oil, Paint and Drug Reporter.)

Washington, Feb. 27, 1914.

Writing from Hong Kong, Consul-General Anderson gives in detail a report upon the utilization of the soya bean in various forms by the people of China. He says that these beans are often used for food, but more generally for oil, and the residue of beancake for fertilizer. He says, among other things: "Bean oil, of course, which constitutes on an average substantially 20 per cent. of the soya bean, is used for all purposes by the Chinese, both as food and as an illuminant, and at times in paints. As a food it is used in substantially the same way, and with more or less interchanging with peanut oil, though the bean oil is less readily absorbed by articles cooked in it."

BRITISH TRADE WITH FOREIGN COUNTRIES AND COLONIES

Imports.

COMPRISING ARTICLES IN THE REPORTER'S TRADES.

	Quantity, year ended Dec. 31— 1911.	1912.	1913.	Value, year ended Dec. 31— 1911. £	1912. £	1913. £
Oils.. refined:—						
Cocoanut, cwts.	588,807	601,757	546,742	1,250,083	1,327,955	1,316,246
Cottonseed, tons.	21,909	21,666	16,586	713,925	660,268	658,277
Olive, tuns.	4,336	6,686	6,163	296,824	402,894	386,258
Palm, cwts.	111,545	43,944	58,200	223,777	90,335	141,997
Totals	.....	.....	.....	2,493,609	2,481,453	2,401,778
Spices:—						
Cinnamon, lbs.	1,344,396	1,314,567	808,387	21,790	24,949	21,883
Ginger, cwts.	69,989	65,529	39,275	156,656	131,645	72,812
Pepper, lbs.	17,940,411	18,974,206	13,176,720	427,978	514,429	361,244
Unenumerated, lbs.	8,101,187	10,323,636	8,881,848	171,999	253,693	231,404
Totals	.....	.....	.....	778,423	924,716	687,343
Saccharine and mixtures containing saccharin or other substances of like nature or use—						
Imports, ozs.	1,390,855	1,314,095	1,226,053	14,483	15,438	13,987
Entered for home consumption, ozs.	994,634	1,028,697	1,234,161	.....	.....	.....
Oil seeds:—						
Castor, cwts.	1,200,147	1,095,440	1,205,537	775,532	667,060	710,587
Cotton—						
From Egypt, tons.	208,350	335,621	238,788	2,468,807	2,766,852	2,065,441
From British India, tons.	197,773	150,134	213,895	1,272,920	1,038,778	1,450,750
From other countries, tons	44,887	91,362	162,513	666,948	804,486	1,123,153
Totals, tons.	1,393,874	1,426,117	615,196	4,398,675	4,800,116	4,648,344
Flax or linseed—						
From Russia, qrs.	183,199	260,039	99,247	608,361	791,145	228,167
From United States, qrs.	1,217	47,578	42,936	4,363	123,075	98,366
From Argentine Republic, qrs.	331,464	387,629	853 / 682,948	1,114,917 / 2,847,649	1,162,157 / 2,065,034	2,398,629 / 1,564,428
From British East Indies, qrs.	833,107	639,629	682,948	2,847,649	2,065,034	1,564,428
From other countries qrs.	44,887	91,420	1,321,885	153,246	284,788	2,905,803
Totals, qrs.	1,393,874	1,426,519	3,273,882	4,728,536	4,366,199	7,195,393
Rape—						
From Russia, qrs.	84,485	90,456	116,440	140,026	151,074	194,617
From British East Indies, qrs.	132,710	70,123	96,497	256,045	166,077	221,231
From other countries, qrs	15,004	26,689	52,623	35,305	59,788	115,877
Totals, qrs.	232,199	187,268	265,560	431,376	376,939	531,725
Soya beans—						
From Russia, tons.	117,236	107,564	38,086	866,618	893,188	316,848
From China, tons.	102,123	65,634	36,430	759,658	545,289	301,596
From Japan, tons.	2,778	15,467	1,929	21,772	128,748	17,240
From other countries, tons	20	95	7	147	735	64
Totals, tons.	222,157	188,760	76,452	1,648,195	1,567,960	635,747
Unenumerated, qrs.	300,458	201,398	126,451	564,250	379,188	233,240
Oils:—						
Fish—						
Train, blubber and sperm, tuns	58,962	68,630	70,886	1,252,663	1,296,477	1,508,416
Cocoanut, unrefined, cwts.	545,940	631,432	622,801	1,661,227	1,902,527	1,342,469
Olive, tuns	4,424	9,611	2,882	200,619	386,239	130,191
Palm, cwts.	1,630,726	1,646,474	1,562,203	2,474,320	2,375,530	2,326,842
Petroleum—						
Crude, gals.	74,334	12,742	1,109,800	1,621	265	14,781
Lamp oils, gals.	142,575,869	146,030,693	157,141,241	1,708,913	2,106,359	2,679,518
Motor spirits,* gals.	67,926,563	79,590,195	100,982,752	1,612,267	2,092,448	3,806,427
Spirit, other than motor spirit, gals.	5,680	270	270	261	4	46
Lubricating oils, gals.	60,526,599	65,327,661	67,974,533	1,662,742	2,059,797	2,472,827
Gas oil, gals.	58,608,508	73,273,526	65,949,677	417,310	635,689	735,388
Fuel oil, gals.	33,074,138	48,135,845	95,062,147	230,960	426,187	1,149,816
Other sorts, gals.	3,447,786	963,856	24,178	59,837	20,940	1,381
Totals of petroleum, gals.	365,639,477	413,333,358	488,244,598	5,693,911	7,341,689	10,860,184
Seed oil—						
Cottonsed oil, unrefined, tons	3,557	6,168	1,070	98,120	168,852	31,748
Linseed oil, pure, tons	28,847	30,860	11,866	1,170,165	1,128,224	310,157
Linseed oil, not pure, tons	287	117	22	9,527	3,747	513
Rapeseed oil, tons.	8,408	8,280	7,599	46,193	252,626	222,556
Other seed oils, tons.	12,526	14,890	20,380	440,334	535,679	767,810
Turpentine, cwts.	480,130	656,216	560,330	914,028	1,028,007	768,800
Soap stock, cwts.	40,400	85,639	52,984	28,679	61,789	41,487
Tallow, unrefined and stearine:—						
From France, cwts.	31,056	.....	.....	53,305	.....	.....
From United States, cwts.	140,824	.....	.....	220,480	.....	.....
From Argentine Republic, cwts.	437,519	.....	.....	741,981	.....	.....
From Australia, cwts.	998,231	.....	.....	1,667,681	.....	.....
From New Zealand, cwts.	413,305	.....	.....	680,588	.....	.....
From other countries, cwts.	182,729	.....	.....	307,213	.....	.....
Totals, cwts.	2,203,664	.....	.....	3,671,248	.....	.....
Stearine:—						
From Belgium, cwts.	.....	35,337	35,011	.....	66,816	68,886
From other countries, cwts.	.....	61,783	47,578	.....	129,408	98,559
Totals, cwts.	.....	97,120	82,589	.....	196,224	167,444
Tallow, unrefined:—						
From France, cwts.	.....	8,285	4,810	.....	12,209	6,213
From United States, cwts.	.....	81,539	86,239	.....	133,608	134,438
From Argentine Republic, cwts.	.....	462,074	231,119	.....	785,175	398,809
From Australia, cwts.	.....	828,585	915,283	.....	1,374,541	1,557,338
From New Zealand, cwts.	.....	438,120	424,307	.....	719,571	717,264
From other countries, cwts.	.....	222,749	272,455	.....	358,776	431,158
Totals, cwts.	.....	2,039,352	1,933,213	.....	3,383,880	3,245,220
Gum:—						
Arabic, cwts.	125,849	169,289	137,274	242,984	326,925	248,791
Lac-dye, seedlac, shellac and sticklac, cwts.	99,666	108,960	108,739	339,887	336,450	418,447
Rosin, cwts.	1,485,431	1,641,376	1,758,070	1,089,685	1,248,524	1,120,659
Manures:—						
Basic slag, tons.	22,666	49,313	51,133	37,889	80,174	102,114
Bones for manure (whether burnt or not), tons.	45,883	41,203	40,685	226,225	217,544	219,637
Guano, tons.	34,124	14,115	25,548	193,000	81,568	149,189
Nitrate of soda (cubic nitre), tons.	128,487	123,580	140,926	1,189,019	1,274,752	1,490,669
Phosphate of lime and rock phosphate, tons.	493,415	620,267	539,016	779,706	840,996	874,166
Quicksilver, lbs.	3,491,016	3,544,691	3,401,165	411,851	392,076	338,544
Chemicals:—						
Acetic acid (other than for table use), cwts.	89,411	81,687	75,128	90,906	83,741	85,790
Bleaching materials, cwts.	148,224	175,982	139,654	36,947	43,746	34,372
Boracite, borate of lime, borate of magnesium and borax, cwts.	405,895	415,58	468,923	176,556	187,285	202,959
Brimstone, cwts.	418,682	432,201	364,283	107,136	112,415	92,712
Carbide of calcium, cwts.	404,018	377,137	513,797	201,643	189,912	272,445
Coal products, not dyes, cwts.	108,261	145,805	119,009	141,642	157,829	164,447
Cream of tartar, cwts.	72,418	79,855	79,080	302,062	325,181	331,994
Glycerine—						
Crude, cwts.	105,961	112,764	87,998	308,998	303,066	255,718
Distilled, cwts.	16,350	22,902	22,061	75,260	91,421	84,527
Potash compounds—						
Saltpeter (nitrate of potash), cwts.	223,915	217,202	237,880	218,304	217,190	240,966
Other sorts.	.....	.....	.....	.....	619,161	630,234
Soda compounds, cwts.	186,269	173,470	179,801	156,215	160,447	172,050
Tartaric acid, cwts.	39,089	42,177	45,936	200,299	223,681	247,377
Unenumerated, including acetate of lime, acetone, muriate of ammonia and sulphuric acid.	.....	.....	.....	1,916,401	1,544,079	1,718,923
Drugs and medicines:—						
Bark, Peruvian.	20,401	24,250	26,122	37,169	48,896	58,003
Quinine and quinine salts	3,291,960	3,063,894	2,422,944	98,056	95,366	102,102
Unenumerated	.....	.....	.....	1,262,898	1,391,881	1,302,963
Dye stuffs (other than dye woods) and substances used in tanning or dyeing:—						

* Duty has been paid on 7,388,411 gallons during the month ended December 31, 1913, and on 85,898,285 gallons during the year ended December 31, 1913.

	Quantity, year ended Dec. 31— 1911.	1912.	1913.	Value, year ended Dec. 31— 1911. £	1912. £	1913. £
Dye stuffs—						
Cutch	101,545	79,468	52,781	139,233	107,402	71,545
Dyes and dye stuffs obtained from coal tar—						
Alizarine and anthracene dye stuffs	59,736	61,178	60,813	257,833	263,723	272,245
Aniline and naphthalene dye stuffs	264,941	283,878	283,027	1,414,294	1,463,679	1,542,545
Synthetic indigo	24,287	28,302	23,889	85,143	90,862	76,695
Other coal-tar dye stuffs	212	109	155	895	311	570
Extracts for dyeing	.....	.....	.....	143,140	138,549	128,437
Indigo	4,917	7,073	4,174	67,430	98,676	54,739
Unenumerated	117,219	156,416	136,099	228,930	279,216	302,128
Tanning substances—						
Bark, for tanning	650,834	572,901	892,054	243,128	224,083	348,082
Extracts for tanning	.....	.....	.....	739,323	844,908	922,600
Gambier	100,233	94,061	101,712	140,744	136,704	142,026
Myrobalans	515,216	576,624	565,222	138,744	162,646	176,855
Sumac	226,919	215,477	164,100	103,981	104,156	83,161
Valonia	248,093	287,810	346,092	121,227	152,186	164,208
Unenumerated	14,412	15 660	33,335	7,991	7,871	17,233
Painters' colors and pigments:—						
Barytes	965,244	1,150,219	1,092,645	134,505	161,649	150,381
Nickel oxide	15,117	23,679	17,965	74,312	116,975	90,119
Red lead	72,618	74,343	61,006	58,798	68,813	63,259
White lead	335,511	349,671	321,323	283,747	342,384	362,913
Zinc oxide	349,213	372,852	368,898	369,247	415,092	429,518
Unenumerated	748,879	869,321	929,105	759,648	828,689	856,235
Totals	2,486,582	2,840,085	2,790,942	1,680,257	1,933,602	1,952,225
Totals of chemicals, drugs, dyes and colors	.....	.....	.....	11,411,060	12,545,758	12,906,509
Oil seed cake, not sweetened:—						
Cottonseed cake, tons	190,027	281,890	236,723	1,128,598	1,715,936	1,407,022
Linseed cake, tons	52,819	55,135	83,685	428,042	491,375	626,118
Rapeseed cake, tons	51,091	16,606	28,882	212,704	85,889	156,592
Unenumerated, tons	35,289	34,071	57,416	194,300	205,621	350,159
Totals, tons	328,226	387,702	406,706	1,963,644	2,498,821	2,539,891
Paraffine wax, cwts	1,012,848	1,475,086	1,140,466	815,838	1,182,380	983,989
Soap:—						
Soft soap, cwts	3,441	3,127	4,367	3,879	3,840	5,253
Household and laundry soap in bars or tablets, cwts	178,115	156,603	162,212	212,688	186,879	195,491
Polishing and scouring soap, cwts	3,874	5,345	4,825	4,754	6,539	5,667
Powder, cwts	39,439	48,135	55,799	43,409	45,727	52,900
Toilet, cwts	14,138	16,693	20,239	95,108	105,694	131,253
Unenumerated, cwts	103,198	172,808	144,950	84,689	113,814	91,963
Total value of imports	.....	.....	.....	680,157,527	744,640,631	769,033,959

Exports of Produce and Manufactures of the United Kingdom.

	Quantity, year e 1911.	19Inded Dec. 31— 2 1913.		Value, year ended Dec. 31— 1911. £	1912. £	1913. £
Oils, refined:—						
Cocoanut, cwts	62,075	51,667	64,133	126,750	109,179	152,061
Cottonseed, tons	22,369	19,882	25,048	661,639	533,799	756,336
Olive, tuns	300	310	271	41,982	44,052	45,464
Palm, cwts	8,782	13,965	15,168	14,518	21,359	24,169
Totals	.....	.....	.....	844,889	708,389	978,030
Grease and unrefined tallow and animal fat, cwts	579,501	587,866	699,670	730,792	669,037	849,093
Oils:—						
Cocoanut, unrefined, cwts	39,387	77,505	61,467	72,794	142,978	126,128
Olive, unrefined, tuns	10	20	20	601	912	1,183
Palm, unrefined, cwts	28,619	11,710	20,905	53,022	21,315	43,096
Oil seed:—						
To Germany, tons	*4,787	5,300	8,975	146,110	154,617	249,080
To Netherlands, tons	4,966	3,982	2,811	146,257	108,834	74,987
To Belgium, tons	2,703	2,516	3,158	82,184	71,382	82,245
To Austria-Hungary, tons	1,073	897	1,632	37,956	29,825	51,638
To Egypt, tons	1,380	1,530	1,557	55,697	56,887	44,407
To Brazil, tons	3,593	4,443	4,350	153,575	168,787	122,720
To British India, tons	1,262	1,302	1,620	59,155	47,486	49,488
To Straits Settlements, tons	494	534	572	22,972	21,675	18,757
To Ceylon, tons	87	138	179	3,669	5,121	5,358
To Australia, tons	6,888	6,911	6,341	268,818	240,056	194,331
To Canada, tons	2,870	852	631	111,186	28,829	18,783
To other countries, tons	26,600	27,576	26,900	972,223	938,508	817,685
Totals—						
Castor oil, tons	.....	.....	10,863	.....	.....	301,850
Cottonseed oil, unrefined, tons	337	540	530	9,317	14,962	15,746
Linseed oil—						
Pure, tons	23,533	22,348	26,747	1,050,856	895,318	795,408
Not pure, tons	3,340	3,595	3,139	120,838	123,294	86,043
Rapeseed oil, tons	6,205	5,479	5,860	187,140	170,269	176,973
Soya bean oil, tons	20,486	17,327	9,362	630,073	504,668	293,239
Other seed oils, tons	1,702	5,722	2,285	52,578	163,496	61,220
Totals, tons	55,603	54,981	58,726	2,050,802	1,872,007	1,730,479
Bleaching powder:—						
To United States, cwts	536,635	460,269	397,060	105,980	91,593	81,301
To other countries, cwts	377,018	365,694	329,393	88,792	88,265	87,475
Totals, cwts	913,653	825,963	726,453	194,772	179,858	168,776
Coal products, not dyes:—						
Aniline oil and toluidine	1,607,244	1,431,190	1,351,446	39,806	32,438	28,941
Anthracene	680,544	2,938,098	564,372	1,844	7,890	1,448
Benzol and toluol	4,068,739	4,607,873	6,657,135	137,293	191,015	302,978
Carbolic acid	160,516	152,383	168,848	162,529	209,263	190,519
Coal tar, crude	111,712	97,428	104,945	17,847	18,217	17,852
Coal tar, refined and varnish	2,150,279	2,294,136	3,095,253	41,425	46,646	69,236
Naphtha	935,398	680,318	528,992	34,144	30,526	24,612
Naphthalene	70,876	52,168	86,051	27,794	22,580	37,605
Pitch	9,314,200	9,373,309	9,735,944	832,353	1,037,964	1,100,699
Tar oil, creosote, etc	29,623,645	28,668,743	36,758,993	397,404	418,566	502,539
Other sorts	462,811	541,739	702,794	187,814	234,787	293,163
Totals	.....	.....	.....	1,880,253	2,249,892	2,665,652
Copper, sulphate of	79,830	84,111	75,869	1,508,881	1,719,504	1,702,873
Dye stuffs:—						
Products of coal tar	47,751	55,721	54,849	178,730	204,475	178,914
Other sorts	166,015	142,316	148,150	123,077	108,837	105,309
Totals	213,766	198,037	202,999	301,807	313,312	284,223
Glycerine:—						
Crude	126,986	108,484	145,763	326,747	322,728	442,677
Distilled	103,729	86,164	97,577	434,049	330,841	378,625
Totals	230,715	194,648	243,342	760,796	653,569	821,302
Manures:—						
Sulphate of ammonia—						
To Germany, tons	2,740	1,643	9,388	36,982	22,991	124,122
To France, tons	7,239	7,665	8,964	94,782	108,129	121,317
To Spain and Canaries, tons	60,657	66,176	60,877	799,594	934,166	834,504
To Italy, tons	10,162	13,542	5,822	128,550	186,708	80,788
To Dutch East Indies, tons	28,182	33,535	38,046	374,261	471,629	515,763
To Japan, tons	76,045	86,659	114,684	976,316	1,188,788	1,546,745
To United States, tons	65,920	39,033	37,067	873,607	555,306	499,617
To British West India Islands (including Bahamas and British Guiana), tons	11,465	8, 91	10,050	155,073	123,847	138,855
To other countries, tons	28,738	28,100	39,806	383,582	399,700	550,209
Totals, tons	291,148	285,043	324,704	3,819,747	3,991,262	4,411,920
Superphosphates, tons	159,463	88,502	63,503	393,668	230,416	166,192
Basic slag, tons	195,844	157,174	165,100	295,220	234,166	261,972
Unenumerated, tons	157,867	135,095	152,938	974,074	833,283	929,630
Total of manures, tons	804,322	664,204	706,245	5,482,709	5,289,127	5,769,714
Medicines, comprising drugs and medicinal preparations:—						
Opium, dried and powdered in the United Kingdom, lbs	49,467	36,332	12,123	77,748	66,335	12,393
Quinine and quinine salts, ozs	1,839,852	1,436,474	1,374,399	75,005	67,671	72,646
Other sorts	.....	.....	.....	1,859,116	2,102,384	2,265,975
Totals	.....	.....	.....	2,011,869	2,236,390	2,351,016
Muriate of ammonia, cwts	154,053	130,116	95,768	186,929	161,156	127,320
Painters' colors and materials:—						
Barytes, cwts	168,421	177,370	114,731	30,542	30,351	20,054
White lead, cwts	402,436	460,177	368,162	422,858	589,933	505,137
Zinc oxide, cwts	39,969	51,322	49,984	46,183	58,855	54,918
Unenumerated, cwts	1,087,577	1,854,913	1,932,330	2,328,375	2,585,362	2,709,248
Totals, cwts	2,298,392	2,543,782	2,465,147	2,827,958	3,264,501	3,280,357

	Quantity, year ended Dec. 31— 1911.	1912.	1913.	Value, year ended Dec. 31— 1911. £	1912. £	1913. £
Potash compounds:—						
Saltpeter (nitrate of potash), British prepared, cwts	40,046	38,101	33,841	53,209	52,270	46,534
Chromate and bichromate of potash, cwts	.....	63,237	55,729	.....	92,450	81,251
Other sorts	.....	.....	.....	.....	93,810	130,993
Totals	.....	... ..	.....	.....	238,530	258,778
Soda compounds:—						
Soda ash, cwts	2,475,995	2,836,682	3,141,907	534,804	558,612	563,524
Soda bicarbonate, cwts	518,806	579,250	501,408	130,879	142,532	124,291
Soda, caustic, cwts	1,620,693	1,564,456	1,498,075	793,369	757,103	723,669
Soda, chromate and bichromate, cwts	85,848	42,706	47,591	119,741	51,753	59,340
Soda crystals, cwts	269,273	249,922	269,246	43,762	43,989	45,321
Soda sulphate (saltcake), cwts	1,175,914	999,135	1,327,956	109,175	87,668	114,530
Soda, other sorts, cwts	479,246	521,821	499,467	132,658	152,882	157,886
Totals, cwts	6,625,775	6,793,972	7,285,650	1,864,388	1,794,530	1,788,561
Sulphuric acid, cwts	95,286	104,546	170,240	38,861	46,299	62,622
Tartaric acid, cwts	6,451	13,956	16,714	35,163	73,184	89,967
Chemicals, other sorts	.....	.....	.....	2,905,534	2,816,529	2,632,077
Totals of chemicals, drugs, dyes and colors	.....	... ..	.....	20,053,129	21,036,390	22,012,233
Oil-seed cake, not sweetened:—						
Cottonseed cake, tons	5,988	5,873	7,789	28,958	30,091	36,828
Linseed cake, tons	2,815	5,486	6,149	24,729	50,391	47,394
Rapeseed cake, tons	427	267	965	1,603	1,709	5,097
Soya bean cake, tons	97,917	46,789	29,903	502,176	334,750	208,860
Unenumerated, tons	11,456	19,406	8,639	73,062	131,707	56,122
Totals, tons	118,603	77,821	53,445	720,528	548,648	354,340
Paraffine wax, cwts	284,954	317,636	328,308	252,519	267,463	320,011
Totals of soap	1,650,212	1,753,105	1,747,203	29,023	32,609	31,510
Total value of exports the produce and manufactures of the United Kingdom	.....	.....	.....	454,119,298	487,223,439	525,461,416

Exports of Foreign and Colonial Merchandise.

	Quantity, year ended Dec. 31— 1911.	1912.	1913.	Value, year ended Dec. 31— 1911. £	1912. £	1913. £
Oils, refined:—						
Cocoanut, cwts	10,388	16,292	11,581	22,321	38,513	27,917
Cottonseed, tons	787	1,174	773	28,888	34,879	24,941
Olive, tuns	627	1,033	814	46,469	82,373	70,680
Palm, cwts	33	870	724	78	1,468	1,626
Totals	.....	.....	.....	97,747	157,233	125,173
Spices:—						
Cinnamon, lbs	675,057	397,697	313,052	15,997	13,988	12,979
Ginger, cwts	14,845	10,771	13,278	33,922	23,918	28,833
Pepper, lbs	5,234,356	6,337,969	5,729,841	107,500	135,539	148,381
Unenumerated, lbs	8,410,663	6,527,759	5,861,350	180,458	152,743	156,228
Saccharin and mixtures containing saccharin or other substances of like nature or use, ozs	141,201	127,322	154,846	1,243	1,564	2,127
Oil seeds:—						
Flax or linseed, qrs	79,067	20,826	28,904	273,098	68,434	69,095
Oil:—						
Fish—						
Train, blubber and sperm, tuns	6,235	14,205	5,796	130,972	270,841	121,360
Cocoanut, unrefined, cwts	62,240	67,424	60,911	124,169	134,723	129,846
Olive, tuns	457	916	383	19,083	33,483	16,944
Palm, cwts	894,245	922,746	924,778	1,330,040	1,310,981	1,308,076
Petroleum—						
Crude, gals	86	100	.....	7	3	.....
Lamp oils, gals	718,021	818,326	508,960	16,041	23,160	16,857
Motor spirit, gals	3,635,446	2,722,539	708,956	104,251	86,766	34,256
Spirit, other than motor spirit, gals	24	10,358	270	4	345	46
Lubricating oils, gals	1,274,548	1,178,433	1,112,414	56,216	57,656	60,851
Gas oil, gals	920,411	1,326,607	614,470	15,681	17,344	13,038
Fuel oil, gals	485,016	379,502	1,181,271	6,635	5,145	19,261
Other sorts, gals	.....	275,559	40	.....	6,046	2
Totals of petroleum, cwts	7,083,552	6,711,424	4,126,381	198,835	196,465	144,311
Soap:—						
Household and laundry soap in bars or tablets, cwts	18,487	14,768	14,983	20,620	16,938	17,288
All other sorts, cwts	1,413	736	1,238	5,127	3,850	5,009
Stearine, cwts	{ 4,440	{ 4,440	9,657	{ 7,789	{ 4,841	17,787
Tallow, unrefined, cwts	{1,173,709	{973,516	946,734	{2,001,387	{1,646,835	1,650,583
Gum:—						
Arabic, cwts	74,263	77,472	50,890	129,124	145,983	91,483
Lac-dye, seedlac, shellac and sticklac, cwts	43,250	46,031	51,590	159,962	152,893	213,863
Rosin, cwts	71,624	66,879	80,688	56,327	52,855	55,031
Manures, guano, cwts	1,954	647	3,315	16,308	4,841	25,013
Quicksilver, lbs	2,357,916	2,418,043	2,011,131	259,637	258,259	192,884
Chemicals:—						
Boracite, borate of lime, borate of magnesium and borax, cwts	281	1,704	223	259	1,462	201
Coal products, not dyes, cwts	48,284	13,101	12,574	13,918	15,597	13,562
Cream of tartar, cwts	11,985	11,845	10,020	53,986	53,466	45,781
Glycerine—						
Crude, cwts	17,066	23,561	17,062	54,872	65,181	47,145
Distilled, cwts	558	2,943	600	2,701	12,704	2,416
Potash compounds—						
Saltpeter (nitrate of potash), cwts	8,090	5,770	10,506	7,710	5,859	9,815
Tartaric acid, cwts	5,194	7,902	6,167	28,902	43,704	33,988
Of all other sorts	.....	.....	.....	129,555	153,556	177,220
Drugs and medicines:—						
Bark, Peruvian, cwts	5,754	8,760	18,621	9,348	17,863	54,846
Quinine and quinine salts, ozs	210,605	730,403	305,591	5,722	25,571	11,768
Unenumerated in import list	.....	.....	.....	468,006	538,107	444,755
Dye stuffs (other than dye woods) and substances used in tanning or dyeing:—						
Dye stuffs—						
Cutch, cwts	28,345	20, 85	14,813	35,073	24,236	18,833
Extracts for dyeing	.....	.....	.....	11,062	3,361	5,190
Indigo, cwts	2,839	2,114	2,267	46,906	29,365	32,264
Tanning substances—						
Bark for tanning, cwts	482,320	399,010	677,027	187,587	172,769	275,795
Extracts for tanning	.....	.....	.....	28,142	28,825	32,056
Gambier, cwts	11,003	11,081	8,154	14,340	15,647	14,833
Myrobalans, cwts	7,986	14,698	22,052	2,491	4,531	6,371
Sumac, cwts	68,060	33,350	18,691	31,115	17,139	8,805
Valonia, cwts	12,764	8,896	3,841	5,886	4,260	2,706
Unenumerated, cwts	1,779	201	7,579	894	152	3,832
Painters' colors and pigments, cwts	15,814	22,678	28,187	21,562	33,990	32,508
Totals of chemicals, drugs, dyes and colors	.....	... ..	.....	1,427,059	1,531,821	1,640,965
Total value of exports of foreign and colonial merchandise	.....	... ..	.....	102,759,134	111,737,691	109,655,718

Our Limited Tin Resources.

(Special to Oil, Paint and Drug Reporter.)

Washington, Feb. 27, 1914.

The production of tin in the United States is insignificant compared with that of the great tin-mining regions, such as the Federated Malay States, Bolivia and Australia, but a small output amounting to an equivalent of about fifty short tons of metallic tin was made from five localities during 1913, according to information received by Frank L. Hess, of the United States Geological Survey.

Three of the producing localities were in Alaska and one each in South Dakota and South Carolina. In Alaska the York Dredging Company, working on Buck Creek, about fifteen miles east of Cape Prince of Wales, produced sixty-five tons of stream tin carrying approximately 68 per cent. of tin. The dredge ran only about six weeks, a dry season preventing longer operation. Thirty-five tons of stream tin produced in 1912, and left on the beach at York was also shipped during 1913.

A little more than a ton of concentrates was shipped from the vicinity of Tinton, S. Dak. The Cherokee Tin Mining Company took 5,700 pounds of cassiterite out of residual placers at Gaffney, S. C.; the product carried 71.5 per cent. of tin and was sold for 34 cents a pound of concentrates. The company did some prospecting by drilling and expects to work the lode. The old gneisses forming the country rock in which pegmatites carrying cassiterite have been intruded are so disintegrated that they can be worked by pick and shovel for many feet in depth.

In North Carolina the Piedmont Tin Mining Company did some development and prospecting work at Linconton, but made no production.

A Statistical Study of the Growth of the Hardwood Distillation Industry, and Deductions as to Its Future Expansion.

BY R. C. PALMER,

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For the statistics relating to the hardwood distillation industry it was necessary to rely almost entirely on the data given in the various reports of the Bureau of the Census. The decennial census reports contain data on this industry beginning with the census of 1880, and since 1906 the bureau has issued yearly statements regarding wood distillation.

Production of Products.

The number of plants engaged in the distillation of hardwoods for the production of products besides charcoal are given in Table 1:—

TABLE 1.

Year.	No. of plants.	Increase per year.
1880	17	.....
1890	53	3.6
1900	92	4.0
1907	100	1.0
1908	101	1.0
1909	116	17.0
1910	117	1.0
1911	105	12.0*

*Decrease.

The production and values of various primary and secondary products are given in Tables 2 to 7:—

TABLE 2.—PRODUCTION OF CHARCOAL.

Year.	Production. Bushels.	Value.	Value per bushel. cents.
1880*	54,000,000	$3,678,000	6.8
1890*	67,000,000	4,523,000	6.75
1900	17,154,000	726,000	4.25
1900	45,657,000	2,966,000	6.5
1907	50,772,000	3,838,000	7.56
1908	37,280,000	2,644,000	7.10
1909	53,000,000	3,269,000	6.25
1910	56,000,000	3,762,000	6.72

*Includes charcoal from softwood and from charcoal kilns producing no other products.

TABLE 3.—PRODUCTION OF CHARCOAL FOR PIG IRON ALONE.

Year.	No. of plants	Value of product.
1900	183	$1,134,000
1904	74	1,292,000
1910	76	872,000

TABLE 4.—PRODUCTION OF CRUDE WOOD ALCOHOL.

Year.	Production. Gallons.	Value.	Value per gallon. cents.	Yearly increase. Gallons.
1880	130,000*	$86,000	65.0*	.....
1890	1,116,675	688,000	61.7	100,000
1900	4,945,000	1,977,000	40.0	400,000
1906	7,871,494	2,676,191	34.0	500,000
1907	7,741,645	1,153,397	14.5	.....
1908	6,285,678	1,084,223	17.25	.....
1909	8,468,083	2,082,253	24.6	2,000,000
1910	8,691,525	2,226,768	25.6	250,000
1912	9,500,000*	2,660,000*	28.0	450,000

*Estimated.

TABLE 5.—PRODUCTION OF ACETATE OF LIME.

Year.	Production. Pounds.	Value.	Value per 100 pounds.	Yearly increase. Pounds.
1880	6,503,000	$156,000	$2.37	.....
1890	26,000,000	315,000	1.21	2,000,000
1900	86,826,000	981,000	1.13	6,000,000
1906	96,376,000	2,017,000	2.09	1,600,000
1907	133,375,000	2,566,000	1.93	39,000,000
1908	106,090,000	1,636,000	1.59	27,000,000*
1909	148,769,000	2,263,000	1.49	42,000,000
1910	152,772,000	2,467,000	1.62	4,000,000
1911	.....	.....	2.50	.....
1912	.....	.....	2.50	.....
1913	.....	.....	2.00	.....

*Decrease.

TABLE 6.—PRODUCTION OF ACETIC ACID.

Year.	Production. Pounds.	Value.	Proportion of acetate for acetic acid. Per cent.	Price per pound. Cents.
1900	26,660,000	$427,000	25	1.6
1904	27,001,000	537,000	25	2.0
1909	51,963,000	1,136,000	27	2.2

TABLE 7.—PRODUCTION OF ACETONE.

Year.	Production. Pounds.	Value.	Proportion of acetate for acetone. Per cent.	Price per pound. Cents.
1900	1,658,715	$178,000	10	10.85
1904	1,300,000	161,000	8	12.4
1909	6,928,000	719,000	23	10.4

Analysis of Data.

An examination of the preceding data shows the following interesting points regarding the life of the hardwood distillation industry during the past thirty years:—

1. The number of plants operating has increased from seventeen to 117, or 690 per cent.; the rate of increase has, however, gradually decreased, and during the last ten years only one new plant per year on the average has been put into operation, excepting from 1908 to 1909, when seventeen new plants started as a reaction of a previous serious business depression that was general for all industries. It must be remembered that the number of establishments is not indicative of the size of the plants or the production of products, etc., and for that reason only secondary importance can be given to number of plants.

2. The value of wood distillation products has increased from $1,000,000 in 1880 to $8,500,000 in 1910. This increase, however, does not show the gain in production of acetate and alcohol. In 1880 the wood distillation business was largely confined to the charring of wood for the production of charcoal for the pig iron blast furnace, and 94 per cent. of the value of hardwood distillation products in 1880 was charcoal. A comparison of the value of charcoal produced in 1880 and 1910 shows an increase of only 2½ per cent. while the value of acetate of lime has increased from $156,000 to $2,500,000, and alcohol from $86,000 to $2,225,000.

3. Up to the year 1900 data on the production of charcoal includes all plants that were charring wood. In 1900 the first report was made for the production of charcoal by plants producing other products. Table 2, therefore, shows a large decrease in the value of charcoal in 1900 over 1890. In Table 3, however, taken from data on production of charcoal pig origin, it is shown that 183 plants were charring wood for this industry alone, producing charcoal worth $1,134,000. These plants are largely the pit or sod kiln type. To be comparable with 1880 and 1890 this value should be added to the data for 1900 in Table 2. These values are even then not exactly comparable with those since 1900. Previous to that time softwood charcoal for pig iron is also included, although the proportion of softwood is not great. Since 1900 the data indicates that charcoal for blast furnaces has been produced to an increasingly greater extent by plants also producing alcohol and acetate. In 1910 only seventy-six plants were producing charcoal alone, worth $875,000, most of these probably being softwood sod kilns.

This point is also verified by the actual condition of the market to-day, 75 per cent. of the hardwood charcoal produced being consumed by blast furnaces.*

4. The actual production is, of course, not truly shown in the total value of the product owing to variation in the market price.

As previously pointed out, the production of charcoal has increased very little since 1880. Charcoal pig iron probably reached its maximum production between 1890 and 1900, which was the period just preceding the introduction of the more modern processes using coke. Since 1900 the production of charcoal pig iron has decreased, although in 1910 the total production of charcoal was only 15 per cent. less than in 1890. This indicates that there has been a large increase in the use of charcoal for other purposes, such as for domestic fuel, gun powder, etc.

5. The production of acetate of lime has increased from 6,600,000 pounds in 1880 to 153,000,000 pounds in 1910. This increase has not been gradual but decidedly spasmodic, as shown in Table 5. The production of acetic acid (Table 6) in the United States, which is made very largely from acetate of lime, has shown an increase of practically 100 per cent. from 1900 to 1910. This increase has kept pace with the production of acetate of lime, as shown by the proportion of acetate required to make the acid reported. The production of acetone, however (Table 7), which also depends on acetate of lime as raw material, shows a more irregular production during the period 1900 to 1909. In 1909 the proportion of acetate required to produce the acetone was 150 per cent. greater than in 1900. This kind of fluctuation probably accounts to a large extent for the variation in the production of acetate, as undoubtedly the production of acetate of lime depends to a large extent on the demand for acetone and acetic acid, practically the entire output of acetate being manufactured into these two products, either in this country or in Europe.

6. The production of wood alcohol shows practically as great an increase as acetate of lime. With less than 130,000 gallons made in 1880, the production increased to 8,700,000 gallons in 1910. This increase has been practically as variable as the other products, although due to different causes. The passage of the denatured alcohol act of 1906 retarded the increase in the manufacture of wood alcohol, and this condition, coupled with the business depression of 1907, combined to cause a decided falling off in the amount of this product for three years. The recovery came, however, with a bound, and in a single year (1909) the production rose to normal.

7. The market prices for the products of hardwood distillation have not in every case been governed by the production as might be supposed. Charcoal reached its minimum price of 4¼ cents per bushel in 1900, the same year the production was at the lowest. In 1907 charcoal brought 7½ cents; a decline followed in 1908 and 1909, and in 1910 this product was selling for 6¾ cents. The tendency of the rise in price during the last few years is due to a considerable extent to the increased use for domestic fuel purposes, which brings a higher price than the pig iron market will permit that industry to pay. From the viewpoint of the production it may be said that the amount produced seems to be related to the market price. The data for charcoal bears this out, if it is considered that the market price would stimulate the production the following year. The only exception to this was in 1908. In 1907 charcoal was bringing 7½ cents, the highest reported, but following the money panic of that year both price and production decreased.

8. The market price and production of alcohol seems to be much more closely related than the other two products, the economic law of supply and demand apparently being the governing factor. In 1880 crude alcohol brought 65 cents a gallon, and the price gradually declined to 34 cents in 1906. A sudden drop to 15 cents in 1907 was caused largely by the fear of being forced from the market after the passage of the denatured alcohol act. Since 1907, however, the price of crude wood alcohol has recovered gradually to 26 cents in 1910, and 28 cents in 1912, accompanied by a gradual increase in production. There is but little doubt that there are other factors in the industry besides the effect of supply and demand that have a strong influence on the market price of wood alcohol. About 15 per cent. of the production of wood alcohol is exported, and while this is an important item in the market, the effect on the price has not been apparent.

9. The value of acetate of lime per pound has shown a wide fluctuation. Worth 2.37 cents per pound in 1880, it decreased to 1.13 cents in 1900, increased to 2.09 cents in 1906, dropped again to 1.49 cents in 1909, and in 1912 was bringing 2.5 cents, and in 1913 had dropped again to 2 cents. These wide fluctuations show little relation to the production which, with the exception of one year, 1908, where the cause was apparent and due to other reasons, has increased gradually.

It is known that the phenomenal price of the last two years was due to a large extent to actual control of production, the restricted production, during a period of war time in Europe, when the demand for acetone was great, resulting in a high price for this article. A higher average value during the latter half of the 1900 to 1910 decade was probably due to some extent to an increase of 35 per cent. in the value of acetic acid.

The price of acetate is governed to some extent by European conditions, since practically 50 per cent. of the total production of acetate in this country is exported, principally to Germany and Belgium.

Formerly a large amount of acetic acid and acetone was imported, but at present practically all of our demands are supplied by manufacturers in this country, indicating a promising stability of the industry.

Possibilities of Future Expansion.

In general it may be said that an analysis of the hardwood distillation industry for the past thirty years, or even the past ten years, shows no indication that the industry has reached its maximum size. During the five-year period, 1906 to 1910, inclusive, the production of charcoal and alcohol each increased 10 per cent. and acetate 60 per cent., and it must be remembered that this time included a serious money panic and the passage of what seemed at the time a detrimental Congressional act.

Since 1910 there is no definite data to show regarding the industry, and while it is known that during 1911 and 1912 production was restricted, this condition was due in no way to an actual overproduction but to a market manipulation.

It is undoubtedly true that during at least twenty years of that period being analyzed, the large growth of the industry was due to a large extent to the perfection of methods of operation, putting the plants on a firm modern basis, and also to the fact that during this same thirty years rapid strides were made in all chemical industries, including those using large amounts of acetic acid, acetate of various kinds, and acetone. It is probable, therefore, that the industry has reached a more steady basis, and it seems reasonable that the growth in the future will be that caused by a healthy expansion of the industries which use acetate of lime, wood alcohol, or charcoal as raw material. Chemistry and the products of chemical manufacturers are at present so closely related to the needs of everyday life that the influence of the increasing requirements of an increasing population would come into play. For example, a large amount of acetic acid is used as a mordant in dyeing cotton cloth; another large amount in the production of coal-tar dyes; still another portion in the manufacture of lead paints, all of which come under the category of everyday requirements.

The principal uses of acetone are as a solvent for acetylene in automobile lights, as a solvent for the recovery of rubber from various rubber-containing material, in the manufacture of chloroform, iodoform, and other medicinal products, and in the manufacture of smokeless powder. This latter use is, of course, increased during times of war in any part of the world, but there is also a steady increase in the manufacture of smokeless ammunition for sporting and general army use. New uses for acetone would undoubtedly be a great boom to the industry as competition with other solvents is quite keen in some instances. Also within the last year the increased use of electric lighting for automobiles has caused a decided decrease in the use of acetone.

The opportunities for growth in the export trade of acetate to Europe are not great, since so large a proportion is already exported. However, exports to the Orient have increased, notably in the last few years, owing to the development of the celluloid industry in Japan, and while the relative amount is small, there is a possibility of sufficient future development that may be of value.

Forty per cent. of the total amount of wood alcohol manufactured in 1910 was used in the production of paints and varnishes. This industry is certainly capable of expansion, and there is no reason to believe the use of wood alcohol would not keep pace with the industry. Methyl alcohol has a great variety of uses, all of which relate closely to domestic uses; for example, the manufacture of celluloid, gas mantles, formaldehyde, photographic films, production of fine soaps, etc., prefer the use of this material in place of any other. The enormous expansions in motion picture film manufacture has created an increased demand for wood alcohol. It is generally recognized that the possibilities in this industry are almost unlimited.

The withdrawal of grain alcohol for denaturing purposes has increased steadily from 1,500,000 gallons in 1907 to 8,000,000 in 1912, an increase of a little over 1,000,000 per year. The yearly production is shown in the following table:—

TABLE 8.—PRODUCTION OF DENATURED ALCOHOL IN THE UNITED STATES.

Year.	Production. Gallons.	Increase. Gallons.
1907	1,779,000	.....
1908	3,321,000	1,542,000
1909	4,555,000	1,234,000
1910	6,078,000	1,523,000
1911	6,881,000	803,000
1912	8,094,000	1,213,000

The production of grain alcohol for manufacturing purposes amounted to over 40,000,000 gallons (190 proof), in 1912, the 8,000,000 gallons denatured being only 20 per cent. of the total. About 300,000 gallons of wood alcohol (95 per cent.) were used for denaturing this amount, or only 3 per cent. of the production. The amount of other denaturants used was very small in comparison to wood alcohol, this being the most desirable material for this purpose. The opportunities for expansion here are apparent. If all the grain alcohol had been rendered tax free by denaturing with a high grade wood alcohol it would have taken 2,000,000 gallons or 20 per cent. of the wood alcohol production. While it is not at all probable that such a condition would exist in the manufacture it is evident that some expansion may be expected from this source.

The charcoal situation is a peculiar one. The manufacture of charcoal pig iron is at present a paying proposition only by obtaining charcoal at a figure which is less than a number of the older type distillation plants can afford to sell it.

Coke iron is a strong competitor of charcoal iron, and the constantly decreasing price of coke with the introduction of by-product ovens is probably the main factor in causing the decreasing price of blast furnace iron. Charcoal iron has many good characteristics, however, which will require its continued production for a great many years. The large distillation plants with costly furnace installations will continue to supply this demand, and will probably seek to compensate for the low returns on charcoal by finding methods of increasing the yields of other valuable products rather than close down the furnaces and find new markets for charcoal. That there are great possibilities in the exploiting of the use of charcoal for domestic fuel is evidenced by the large market which has been worked up in the Eastern States, and the almost complete substitution of this fuel for starting fires in place of wood blocks and kindling. Weight for weight the charcoal has considerably higher fuel value than wood, and although it is bulky it ignites quickly and gives a hot clean fire.

On briefly reviewing the production and uses of the products obtained in the destructive distillation of hardwoods, it would seem that the present opportunities for the expansion of this industry and the extension of the markets are not great, but it is also true that this is apparent only because of the immediate conditions in the industry rather than the conditions during the decade 1900 to 1910.

Viewed from this standpoint there is every encouragement that the present reactive influences are only temporary, and by an examination of the great variety of markets for the products which relate so closely to the common requirements of the highly technical period in which we are living, the future expansion of the industry seems assured.

Relation to Sawmills.

One addition statement regarding the opportunity for the sawmill and stumpage owner cutting hardwood who may desire to make use of his forest and mill waste for distillation, will perhaps make the discussion more concrete:—

A plant of sixty-four cords daily capacity, which is a plant of economical size, would require, roughly, 20,000 cords a year (300-day year). This plant, if of the modern oven type, would produce yearly 1,000,000 bushels of charcoal, 160,000 gallons of refined alcohol, and 3,000,000 pounds of acetate of lime. This production is a little less than 2 per cent. of the total production in 1910.

As the average increase in production was a little of 2 per cent. per year for the period 1906 to 1910, it appears that on the average, at least one new plant of this size could be built every year to care for the natural healthy growth of the industry, to say nothing of expansion that would come as a result of unusual conditions. Nor does it consider the building of larger new plants to take the place of plants that close down for various causes.

This does not appear at first sight to be promising. It must be remembered, however, that the number of sawmills at present cutting over 1,500,000 cords a year of hardwoods (which would be the size of the mill necessary to produce 20,000 cords of waste), in the four principal distillation States, Michigan, New York, Pennsylvania and Wisconsin, is probably not very great. Many of the mills of this size now operating will not have twenty more years to run, and a mill of at least twenty years' life would be an additional requirement for the building of a distillation plant.

The number of sawmills having this opportunity is then not so great as to cause an unstable market, even if several were to introduce this method in the same year.

January 20, 1914.

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*Maintained in co-operation with the University of Wisconsin.

*"The Markets for the Products of the Hardwood Distillation Industry," by R. C. Palmer. Vol. II, "Review of Forest Service Investigation."

Chewing Gum Field in Holland.

(Special to Oil, Paint and Drug Reporter.)

Washington, Feb. 27, 1914.

The market in Amsterdam for American chewing gum is referred to in a communication sent to the Commerce Department by Vice-Consul-General DeYoung, at Amsterdam. He says:—

Until recently the chewing gum habit was little known in Holland. Traveling Americans complained that while the gum was obtainable in Paris, London, and other large centers, they could not get it in Amsterdam. A large concern has therefore introduced chewing gum, and now the boys and girls of the city are frequently seen using it. The sale of chewing gum is not yet large but is increasing, which suggests a market for American manufacturers who have not yet entered the field.

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